EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE.

MS.RAMYA.S

M.Sc., Nursing II Year

Bishop's College Of Nursing

Dharapuram.

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI IN PARTIAL FULLFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

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CERTIFICATE

This is to certify that the dissertation entitled **"A Study to assess** th**e effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected hospital at Erode "** is a bonafide work done by Ms. S.RAMYA M.Sc(N) II year Bishop's college of Nursing, Dharapuram in partial fulfillment of the University rules and regulations for award of masters of science in nursing under my guidance and supervision during the academic year 2013-2015.

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"The lord will fullfill his purpose for me; your love,O Lord,endures forever"

Psalm 138:8

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ABSTRACT

Chronic renal failure, or chronic kidney disease, is a slow progressive loss of kidney function over a period of several years. Eventually the patient has permanent kidney failure. Chronic kidney failure only when their kidney function is down to 25% of normal. As kidney failure advances and the organ's function is seriously impaired, dangerous levels of waste and fluid can rapidly build up in the body. Treatment is aimed at stopping or slowing down the progression of the disease, this is usually done by controlling its underlying cause. If chronic kidney failure ends in end-stage kidney disease, the patient will not survive without dialysis (artificial filtering) or a kidney transplant.

Dialysis, or the artificial system for cleansing the blood, is one of the most common treatment options for patients with end-stage renal disease. There are two main types of dialysis that is hemodialysis and peritoneal dialysis. Haemodialysis is a treatment for the patients whose kidneys cannot function anymore. It is a way of cleansing the blood of toxins, extra salts and fluids through a dialysis machine called "artificial kidney". It helps to maintain proper chemical balance such as potassium, sodium and chloride and keeps blood pressure under control. The annual incidence rate was 282population. During the hemodialysis procedure, the patient's blood pressure is closely monitored, and if it becomes low, or the patient develops any other signs of low blood volume such as nausea, the dialysis attendant can administer extra fluid through the dialysis machine.

A study was done to assess the effectiveness of hatha yoga on fatigue and insomnia among patients with hemodialysis in Nallaswamy hospital, Erode.

An Evaluative approach was used for this study. The research design used was One group pre test and post test design. The conceptual framework of

the study was based on the “widenbach’s helping art of clinical theory” Non probability purposive sampling method was used to select the 60 samples of the study. The tool used for this study was fatigue severity scale to assess the level of fatigue and insomnia severity index was to assess the level of insomnia among patients with hemodialysis. Hatha yoga was given to the hemodialysis patients for 30 minutes once in a day, one hour after hemodialysis for a period of 15 days.

The data gathered were analysed by using descriptive and inferential statistics.

The mean post test mean score of fatigue and insomnia were 18.7(SD ±7.23) , 12.05(SD ±4.48) and the mean pre test score were 38.81 (SD ±7.47), 21.28 (SD ±3.38) respectively. The mean difference was 20.1 and 9.23 respectively. The paired ‘t’ value were 16.17 and 12.3 and the table value (t=2.00) respectively which was significant at P<0.05 levels.

The study findings revealed that there was no significant association with demographic variables for level of fatigue except for, area of residence (χ^2=26.78),duration of illness(χ^2=117.31), and cycle of hemodialysis per month(χ^2=50.56), at p<0.05 levels.

The study findings revealed that there was significant association with demographic variables for level of insomnia except for sex(χ^2=0.49) and type of family (χ^2=2.3), at P<0.05 levels.

The above findings showed that hatha yoga was effective intervention in reducing fatigue and insomnia among patients with hemodialysis.

CHAPTER-I
INTRODUCTION

Natural forces within us are the true healers of disease

Hippocrates.,(2010)

BACKGROUND OF THE STUDY

As defined by World Health Organization (WHO), it is a "State of complete physical, mental, and social well being, and not merely the absence of disease or infirmity." Health is a dynamic condition resulting from a body's constant adjustment and adaptation in response to stresses and changes in the environment for maintaining an inner equilibrium called homeostasis.

World health organization., (2012)

Wellness is much more than merely physical health, exercise or nutrition. It is the full integration of states of physical, mental, and spiritual well-being. The model used by our campus includes social, emotional, spiritual, environmental, occupational, intellectual and physical wellness. Each of these dimensions act and interact in a way that contributes to our own quality of life.

Halbert Dunn.M.D., (2012)

Illness means, wickedness and unpleasantness (obsolete) an unhealthy condition of body and mind.

So illness and disease can range from unhealthy bodily state, the word illness seems a bit more restrictive –but can use both interchangeably.

Carol Ritberger.,(2010)

A disease is a particular abnormal, pathological condition that affects part or all of an organism. It is often construed as a medical condition associated with specific symptoms and signs**.**

World health organization.,(2013)

Renal failure defind as a kidneys suddenly become unable to filter waste products from the blood. When the kidneys lose their filtering ability, dangerous levels of wastes may accumulate in the bloods chemicals.

Mayo clinic.,(2014)

The causes of acute and chronic renal failure malfunction of the kidneys resulting from including any infection, trauma, toxins, hemodynamic abnormalities, and autoimmune disease, and often resulting in systemic symptoms, especially edema, hypertension, metabolic acidosis, and uremia occur.

National kidney foundation.,(2011)

The symptoms of renal failure may include, decreased urine output, although occasionally urine output remains normal, fluid retention, causing swelling in the legs, ankles and feet, drowsiness, shortness of breath, fatigue, confusion , insomnia, nausea and vomiting.

Mayo clinic.,(2012)

The management of renal failure such as, treatments to balance the amount of fluids in the blood. The renal failure is caused by a lack of fluids in the blood, in such cases may recommend intravenous fluids. In other cases patient may cause to have too much fluid, leading to swelling in the arms and legs. In these cases, may recommend medications (diuretics) to cause the body to expel extra fluids. Dialysis to remove toxins from the blood. If toxins build up in the blood, patient may need hemodialysis.

T.G. Hedrick prarl.,(2011)

Dialysis, or the artificial system for cleansing the blood, is one of the most common treatment options for patients with end-stage renal disease. There are two main types of dialysis,that is hemodialysis and peritoneal dialysis.

Emory Health Care.,(2014)

Hemodialysis defind as a to help remove toxins and excess fluids from the body while the kidneys heal. Hemodialysis may also help remove excess potassium from the body. During hemodialysis, a machine pumps blood out of body through an artificial kidney (dialyzer) that filters out waste. Then blood is then returned to the body.

Hibas niman.,(2010)

Hemodialysis is an effective treatment for those with end stage renal disease. However, hemodialysis alone will not provide a complete treatment for those with kidney failure. Diet and fluid restrictions need to be followed, and medicines may need to be taken to replace other functions of the kidneys, such as regulating blood pressure and stimulating production of red blood cells to prevent anemia.

Mayo clinic.,(2013)

The patient is experiencing a major inability to rid the body of excess water, or is complaining of problems with the heart, lungs, or stomach, or difficulties with sensation in their legs, sleep disturbences and fatigue, dialysis may be indicated even though the creatinine clearance has not fallen to the 10-12 cc/minute level.

William. M.D.,(2014)

Patients usually require hemodialysis when the waste products in their body become so high that they start to become sick from them. The level of the waste products usually builds up slowly.

William .M.D.,(2014)

In hemodialysis, a machine filters wastes, salts and fluid from the blood when the kidneys are no longer healthy enough to do this work adequately. Hemodialysis is the most common way to treat advanced kidney failure. The procedure can help the carry on an active life despite failing kidneys.

Mayo Clinic.,(2014)

The duration of hemodialysis procedure in usual schedule treatments is three times a week. Patients likely have the same morning or afternoon time for each treatment. The length of treatment depends on the patient conditions. In hemodialysis procedure three to four hours is common.

National Kidney Foundation.,(2013)

Patients on hemodialysis are advised to increase their protein intake and limit the amount of potassium, phosphorus, sodium, and fluid in their diet.

National Kidney Foundation.,(2013)

Most patients tolerate hemodialysis well. However, side effects of hemodialysis can occur. Low blood pressure is the most common complication and can be accompanied by light headedness, fatigue, shortness of breath, insomnia, abdominal cramps, muscle cramps, nausea, and vomiting. Treatments and preventive measures are available for the discomforts that can occur during dialysis. Many of these side effects are related to excess salt and fluid accumulation between dialysis treatments, which can be minimized by carefully monitoring how much salt and fluid patient may consume.

Williams. A.W.,(2009)

The complication of hemodialysis is, sometimes used when acute kidney injury develops. Dialysis is always used with extracaution in people who have acute kidney injury, because dialysis can sometimes cause low blood pressure, irregular heart rhythms (arrhythmias), and other problems that can make acute kidney injury worse occur.

Ebola.,(2006)

After the hemodialysis treatment some of the tests are done to help the prevent problems.The patients weight before and after each session will be recorded, as will the length of time it takes to complete the dialysis session.

Anne.C. Poinier.,(2013)

Fatigue is a subjective feeling of tiredness, which is distinct from weakness, and has a gradual onset. Fatigue, also referred to as tiredness, exhaustion, lethargy, and restlessness, describes a physical or mental state of being tired and weak.

National Institutes of Health.U.S.A.,(2014)

Fatigue is often caused by a combination of factors. Advanced disease is the most common cause of fatigue. Severe heart and lung disease, kidney failure, and liver disease, as well as cancer and its treatments are also associated with fatigue.

Dugdale.,(2012)

Fatigue is a debilitating symptom or side effect experienced by many patients on long term dialysis therapy. Fatigue has a considerable effect on patient health and survival by some patients.

The fatigue ranges from 60% to as high as 97% in patients on hemodialysis replacement therapy. The importance of patients with kidney disease is emphasized by the observation that 94% of hemodialysis patients endorsed a willingness to undergo more frequent dialysis if there would be an associated increase in energy level.

Parker. K.P.,(2008)

Insomnia is the perception or complaint of disturbed sleep or poor quality sleep due to a number of factors, such as difficulty falling asleep, waking up frequently during the night with difficulty returning to sleep, waking

up too early in such as tiredness or fatigue, a lack of energy, difficulty concentrating, and irritability.

Mayo Clinic.,(2012)

Insomnia is the extremely common among hemodialysis patients. Subjective sleep complaints are reported in up to 80% of patients, problems with restlessness, jerking legs, snoring, choking sensations and chronic fatigue**.**

Jenckes. M.W.,(2010)

Integration of complementary and alternative medical therapies , such as acupuncture, traditional oriental medicine, chiropractic, herbal medicine, massage therapy, yoga and mind body therapy as conventional treatment advice may interact with patients own effort towards self care in hemodialysis patients.

Micheal .H.,(2008)

Hatha yoga is a powerful tool for self-transformation, to bring the patient attention to breath, which helps us to still the fluctuations of the mind and be more present in the unfolding of each moment. Hatha Yoga has been touted for its ability to reduce problems with such varying conditions as asthma, backaches, fatigue, diabetes and chronic renal failure and insomnia. Hatha Yoga as a daily exercise program can improve fitness, strength, flexibility and also reduced faigue and insomnia. People who practice yoga correctly every day report that it can promote high levels of overall health and energy.

Eliade.,(2009)

Hatha Yoga combined focus on mindfulness, breathing and physical movements brings health benefits with regular participation. Yoga participants report better sleep, decreased fatigue increased energy levels and muscle tone,

relief from muscle pain and stiffness, improved circulation, disturbed sleeping and overall better general health of the patients**.**

Rinpoche.,(2010)

Hatha yoga's health benefits, suggest that yoga is a safe and effective way to increase physical activity, especially strength, flexibility and balance. There's some evidence that regular yoga practice is beneficial for people with high blood pressure, heart disease, chronic renal failure, aches and pains, including fatigue, lower back pain, insomnia, depression and stress. There are many different styles of yoga, such as Ashtanga, Iyengar and Sivananda. Some styles are more vigorous than others. Some may have a different area of emphasis, such as posture or breathing. Hatha yoga can relieve the symptoms of several common and potential problems such as arthritis, chronic renal failure and chronic fatigue and insomnia.

Mayo clinic.,(2011)

NEED FOR THE STUDY

In world wide, Twenty-six million people have chronic kidney disease (CKD), the precursor to End Stage Renal Disease (ESRD), and millions more are at increased risk. There are more than one million ESRD sufferers worldwide, with more than 571,000 individuals living in the U.S. More than 87,000 people die from causes related to kidney failure each year. Nearly 72,000 patients are on the waiting list for a kidney transplant, but only about 18,000 receive a new kidney each year. At the end of year 2011, haemodialysis remained the most common treatment modality, with approximately1,929,000 patients, undergoing haemodialysis (89% of all dialysis patients) and around 235,000 patients undergoing peritoneal dialysis (11% of all dialysis patients).

American society of Nephrology.,(2013)

The global average prevalence for hemodialysis was 215 patients per million population, although significant regional variations existed. By the year 2010, it is expected that the number of dialysis patients approach 2 million. Currently, there are over one million dialysis patients worldwide, with as incidence of a, million new patients each year.

Hippocrates.,(2010)

In world wide Mortality rates for hemodialysis patients are much higher than the general population and are even greater soon after starting dialysis. The main predictor was time since dialysis start as divided into early (up to 120 days), intermediate (121–365 days), and late (over 365 days) periods. Analyzed mortality patterns in 86,886 patients in 11 countries focusing on the early dialysis. Mortality rates (deaths/100 patient-years) were 26.7%.

Pisoni .R.L.,(2010)

In the United States Contemporary comparisons of mortality in matched hemodialysis and peritoneal dialysis patients. Researcher aimed to compare survival of incident hemodialysis and peritoneal dialysis patients. Here they matched 6337 patient pairs from a retrospective cohort of 98,875 adults who initiated dialysis. Cumulative survival was higher for peritoneal dialysis patients than for hemodialysis patients. Cumulative survival probabilities for peritoneal dialysis 80.7% *versus* hemodialysis were 85.8%.

Austin.P.C.,(2009)

In the United States Prevalence of arteriovenous fistulas in incident hemodialysis patients**,** reported a risk equation for arteriovenous fistula (AVF) maturation failure. 195,756 adult patients initiating outpatient hemodialysis therapy in the United States. Using the risk categories, AVF use varied from 19.0% (very high risk) to 25.6% (low risk).

Lilly. M.P.,(2012)

In Germany to determine the prevalence of dialysis patients rose considerably between 41,350 to 57,188. This corresponds to a 37% increase in the prevalence rate of dialysis and an average annual increase of 5.4%. The average annual increase in dialysis prevalence was only 1.1% (58,579) dialysis patients. In Germany 57,188 dialysis patients are treated in hemodialysis units, while 5.7% undergo home dialysis treatments (4.9% with PD and 0.8% with home HD).

Van Biesen. W.,(2009)

In France determine the, prevalence of end-stage renal disease (ESRD) treated with hemodialysis. A total of 30,882 patients were treated with renal dialysis in each year. The unadjusted prevalence of hemodialysis was 513.1 per million population (pmp).

Allemand. H.,(2009)

In United Kingdom (UK), to determine the prevalence of hemodialysis patients, renal failure patients receiving renal replacement therapy (RRT).It was an estimated, an overall rate of 0.22 per 100 hemodialysis patients per year. The number of episodes and overall rate were 284 and 0.92 per 100 prevalent hemodialysis patients per year.

Pitcher. D.,(2014)

In Australia, to assess the prevalence of Haemodialysis (HD), conducted in urban or regional clinics and hospitals. In hemodialysis accounted for the majority of treatment (90%), with only 10% of dialysis patients receiving peritoneal dialysis (PD), there were 1,302 prevalent hemodialysis patients in Australia (including both PD and HD) identified as with a level 4.6 times higher for the general population (2,269 per 1,000,000).

Australian Institute of Health and Welfare .,(2013)

In Brazil, to determine the prevalence of hemodialysis, and a survey based on data of dialysis units in Brazil. The estimated prevalence and incidence rates of chronic kidney disease on maintenance dialysis were 503 and 177 patients per million population. The estimated number of new patients starting hemodialysis in 2012 was 34,366. The annual gross mortality rate was 18.8%. For prevalent patients, 31.9% were aged 65 years or older, 91.6% were on hemodialysis and 8.4% on peritoneal dialysis.

Bras Nefral. J.,(2014)

In Malaysia, to determine the prevalence of hemoialysis, and acceptance rates increased more than 10-fold, in 18 per million population (pmp). The overall rate was 199 population. hemodialysis prevalence rate increased almost 14-fold over the last 20 years, in 71 per million population.

Salonen.T.,(2012)

In Pakistan, to estimate the prevalence of hemodialysis to assess the general population aged 65 years or older.The prevalence of hemodialysis is highly, among general population. While it ranges from 12.2 to 34.2%. The hemodialysis patients total prevalence on 12 million population.

Kavanagh. D.,(2010)

In Taiwan to determine the prevalence and incidence of hemodialysis therapy, have a great impact on dialysis patients. The incidence rate had been up to 384 per million population, and the prevalence rate was 2311 per million population.

Huang. C.C.,(2009)

In India, to determine the prevalence of hemodialysis to assess the population screening. 4712 patients were participated. Mean age was 42.38±12.54 years, 56.16% were male. Thirty-seven were found to have chronic renal failure (prevalence rate of 0.78%). If these data are applied to

India's one billion population there are 7.85 million CRF patients undergoing hemodialysis.

Alavian.S.M.,(2008)

In Delhi, to determine the prevalence of hemodialysis and also associated with risk factors.The population had 3,155 males and 2,097 females. The prevalence of hemodialysis males was 11.1% compared to 16.6% of females.Overall, estimated the prevalence of Chronic kidney disease (CKD) to be 785 per million population.

Gifford. F.J.,(2009)

According to the Lucknow prevalence and statistical report on, the hemodialysis patients, the varied widely from 0% to 54%. In a Uthra pradesh, males had an overall prevalence of 1.6% and females 0.8%. In community based showed a male prevalence of 48% among patients with serum creatinine more than 1.8 mg/dL, while other hospital-based studies found males constituting 60-78% of chronic kidney disease (CKD) prevalence population.

Donahue. J.G.,(2010)

In Tamilnadu prevalence of End stage renal disease (ESRD). It is estimated that there are about 55,000 patients on hemodialysis, and the hemodialysis population is growing at the rate of 10–20% annually.

Agarwal.S.K.,(2010)

In Tamilnadu incidence of insomnia in chronic maintenance of hemodialysis patients . There was high prevalence of depression (47.8%), insomnia (60.9%), increased risk of sleep apnea (24.6%) and depression in caregiver (31.9%).

Hedayati. S.S.,(2010)

In Chennai, conducted to assess the prevalence of hemodialysis patients with malnutrition. Most indicators, especially identifying high risk patients with malnutrition. Majority of patients (35 males and 10 females) 1182 patients had been undergoing hemodialysis for a period of 2-3 years. Assessing the prevalence population, the score was 17.3±3.2 in women and 18.2±2.6 in men.

Mani.M.K.,(2009)

In Chennai, to determine the prevalence of end stage renal disease and undergoing hemodialysis patients between the period of 2008 to 2009. A total of 66 patients (46 males (69.6%) with the mean age of 49.52±14.3 years and 20 females (30.3%) with the mean age of 46.3±16.4 years.

Jeejeebhoy. K.N.,(2009)

In Coimbatore south study was conducted to determine the prevalence of hemodialysis. Its prevalence among hemodialysis patients ranges from 19 to 90%. A total of 145 patients (102 males and 43 females). In Coimbatore, there are almost 8,000 people suffering from severe renal failure undergoing hemodialysis, a very wide range of prevalence rates for hemodialysis (4.3-45.2%) respectively.

Jaiswal. S.P.,(2009)

A Study was conducted on High prevalence of sleep problems, fatigue and depression are reported in maintenance hemodialysis (MHD) patients. To assess fatigue, depression, sleep problems and their corelates among MHD patients in a tertiary care center in India, Over 70% of dialysis patients suffer chronically from severe fatigue and tiredness. In 69.1% of their patients had insomnia and that advancing age correlated with sleep disturbances. Patients demographic, medical and co-morbidity profile were recorded. Epworth Sleepiness Scale (EPSS, abnormal daytime sleepiness if score >13) were used to assess sleep abnormalities. Fatigue Severity Scale was used to assess fatigue (score ≥36 indicates fatigue). Age of the study population was 37.1 ± 13.1

(range 19-65 years) years, with 89.3% being males. 44.7% being females reported fatigue. Fatigue scores were found to be significantly associated with lesser frequency of dialysis ($P < 0.05$).

Merlino.G.,(2009)

A cross sectional study to assess the prevalence of insomnia in patients with renal failure admitted to dialysis unit in Marjan Teaching Hospital. The sample composed of 88 cases (51 males and 37 females) referred for hemodialysis. Sleep disorders are common among patients with kidney failure undergoing dialysis. This study was designed to investigate the rate of insomnia in patients with renal failure undergoing hemodialysis. The overall mean age of patients who sit for renal dialysis was 53.14 ± 13.92 years. Out of 88 patients, 47 patients (53.4%) were complaining from insomnia, 57.9% of the sample were males and 42.1% were females. Insomnia was reported by 53.4% among 88 patients undergoing hemodialysis.

Al-Jahdali.et. al.,(2010)

A Study was conducted in prevalence of therapeutic effect on hemodialysis patients in the Hatha yoga exercise group. The age of the patients in the hatha yoga exercise group was 38.95 ± 2.84 years, in patients in the pre hemodialysis. The aim of the present study was to evaluate the actual prevalence of insomnia (strictly defined as either trouble falling asleep and/or night-time waking) and other sleep disturbances in a large population of hemodialysis patients from several dialysis units in the same geographical area of Naples and its ranges, decreased by 4.0% after four months (P = 0.096). There was also a significant reduction in fatigue and sleep disturbances from 2.68 ± 0.02 IU / L to 2.34 IU / L (- 12.7%; P = 0.010) U / L (0.90%; P = 0.0001). There was a significant correlation between the pre-hemodialysis oxidative stress parameters (r = 0.440), catalase (r = 0.872), has evaluated the effects of a yoga-based exercise program on pain, fatigue, sleep disturbance, and biochemical markers in hemodialysis patients. Hatha yoga exercise group,

there was a significant reduction in fatigue and sleep disturbances of (12.7% reduction; $P = 0.010$). These findings suggest that Hatha yoga exercise in patients with End stage renal disease (ESRD) has therapeutic, preventative, and protective effects in End stage renal disease patients.

Deligiannis.A.Kouidi.,(2010)

A study was conducted to determine the effects of a yoga-based exercise program on pain, fatigue, sleep disturbance, and biochemical markers in hemodialysis patients. Randomized controlled trial was carried out in the outpatient hemodialysis unit of the Nephrology Department, Uludag University. Clinically stable hemodialysis patients ($n = 37$) were included and followed in two groups, the modified yoga-based exercise group ($n = 19$) and the control group ($n = 18$). Yoga-based exercises were done in groups for 30 min/day twice a week for 3 months. The main outcome measures were pain intensity measured by the visual analogue scale, (VAS), fatigue, sleep disturbance, and grip strength (mmHg). After a 12-week intervention, significant improvements were seen in the variables, pain -37%, fatigue -55%, sleep disturbance -25%, grip strength +15%, urea −29%, creatinine −14%, alkaline phosphatase −15%, cholesterol −15%, erythrocyte +11%, hematocrit count +13%;and no side-effects.

A.M. Berger.,(2011)

The investigator observed during clinical experience in Nallaswamy Hospital, Erode that the patients with Hemodialysis, majority of the patients with hemodialysis suffered with the pain, fatigue, insomnia, muscle cramp, and swelling in the face and legs. Hence the researcher felt to help the patients with hemodialysis by using hatha yoga to reduce the level of fatigue and insomnia.

STATEMENT OF THE PROBLEM:

A study to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected Hospital at Erode.

OBJECTIVES

1. To assess the pretest and post test level of fatigue among patients with hemodialysis.
2. To assess the pre test and post test level of insomnia among patients with hemodialysis.
3. To compare the pre test and post test level of fatigue among patients with hemodialysis .
4. To compare the pre test and post test level of insomnia among patients with hemodialysis.
5. To findout the association between the post test level of fatigue among patients with hemodialysis and their selected demographic variables.
6. To find the association between the post test level of insomnia among patients with hemodialysis and their selected demographic variables.

OPERATIONAL DEFINITIONS:

Effectiveness:

"It means producing an intendend result of the individual.

Erlentson.,(2002)

In this study effectiveness refers to the extent to which the Hatha yoga has brought about the significant difference between the pre and post test level of fatigue and insomnia among patients with hemodialysis which is measured by using statistical measurements and its scores.

Hatha yoga:

Hatha yoga is the most widely practiced form of yoga. It is the branch of yoga which concentrates on physical health and mental well-being, and meditation bringing about a sound, healthy body and a clear, peaceful mind. Hatha yoga postures also stretch and align the body, promoting balance and flexibility.

Stephen.,(2013)

In this study the Hatha yoga consisted of positional postures Ardha chakrasana (standing backward bend), ardha chakrasana (standing forward bend), Nitambasana (mountain pose), nitambasana (side stretch), nitambasana (Reclining spinal twist), (pranayama) breathing techniques and Shavasana, which were practiced for 30minutes once in a day, one hour after hemodialysis for 15 days.

1) Ardha Chakrasana (Standing Backward Bend)

Preparing for Ardha chakrasana essentially the real meaning of yoga is alignment in between all extential layers.

- Stand straight with feet together and arms alongside the body.
- Balance the weight equally on both feet
- Breathing in, extend the arms overhead, palms facing each other
- Breathing in, gently bend backwards pushing the pelvis forward, keeping the arms in line with the ears, elbows and knees straight, head up, and lifting the chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax. Practice this step for 3minutes.

2)Ardha chakrasana(standing forward bend)

Stand straight with feet together and arms alongside the body.

- Balance the weight equally on both feet
- Breathing in, extend the arms overhead, palms facing each other.

- Breathing in, gently bend forward pushing the pelvis backward, keeping the arms in line with the ears, elbows and knees straight, head up, and lifting the chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax.
- Practice this step for 3 minutes.

3) Nitambasana (mounatain pose)

This pose is the foundation of many yoga postures.

- Stand up straight with the legs hip-width apart. Keep the feet parallel to each other.
- Keep the shoulders tracking down the back and lengthen the back of the neck.
- Engage the leg muscles by lifting the kneecaps.
- Keep the throat soft and relax the jaw.
- Feel centred both feet. Practice this step by slowly rocking subtly from side front to back.
- When the person feel centred, stop rocking and focus on the breathing.
- Inhale through the nose, filling the lungs from bottom to top.
- Exhale, emptying the lungs.
- Take 5 to 10 breaths in this way. Practice this step for 2 minutes.

4)Nitambasana (Side Stretch)

This posture brings awareness to the lateral planes of the body and helps to open the shoulders.

- Begin in Mountain pose, standing with the feet parallel.
- Inhale and life both arms overhead with the palms facing each other.
- The person can also keep your arms bent, with the hands on the hips if keeping your hands above the head feels like and stretching too deeply.

- Gently bend from the waist to the right, feeling a stretch along the left side of the body.
- Focus on keeping the left leg grounded into the earth beneath.
- Hold the arms on the right and inhale and exhale 1 to 3 times
- On an inhalation, bring the arms to centre above the head.
- Repeat on the other side.
- Modify this pose by keeping your hands on the hips.
- Remember not to strain or hold the breath. The person should feel a subtle stretch. Practice this step for 2 minutes.

5) Nitambasana (Reclining spinal twist)

- Begin by lying down on the back with your legs extended away from the person.
- Bend the knees and bring the feet flat to the ground. Then bring the knees toward the chest.
- Extend the arms out ti the sides in a position.
- Keep the jaw loose and the back of the neck long.
- Use the core to drop the knees to the right on an exhalation. The person can squeeze a blanket or block between the thighs if prefer.
- Take 3 to 5 breaths.
- Roll the legs back up to centre, and repeat on the other side.
- Grasp the big toes with the index and middle fingers. Bend the knees to help you, if needed. As modification the person can pass a yoga strap under both feet at the big toe mounds and hold onto the strap instead of the toes.
- With an inhalation lift the body partway out of the pose as if the person were going to stand up and then on inhalation fold deeper into the pose.
- Hold for 1to 2 breaths, Come slowly to an upright position to exit the posture on an inhalation.
- Keep the head and neck relaxed throughout the movements. Practice this step for 2 minutes.

6) Pranayama

'Prana' refers to the universal life force and 'ayama' means to regulate or lengthen. Prana is the vital energy needed by our physical and subtle layers, without which the body would perish. It is what keeps us alive. Pranayama is the control of prana through the breath. These techniques rely on breathing through the nostrils.

Sit in comfortable position, Close the eyes, Have the hands in GyanMudra. Relax the stomach muscles. Now expel the air as forcefully as in the comfortable with through the nose. Then allow the inhalation to occur completely passively without any additional effort. To repeat, the exhalation is done using conscious sharp force, while the inhalation is just a recoil action bringing the air back into the lungs. All the breathing takes place through the nose. Right after the passive inhalation, exhale again forcefully and continue at a steady rhythm. Practice this step for 8 minutes.

7) Shavasana.

Shavasana is perhaps the most important part of yoga practice. Lying on the back, the arms and legs are spread at about 45 degrees, the eyes are closed and the breath deep, using deergha (long) pranayama. The whole body is relaxed onto the floor with an awareness of the chest and abdomen rising and falling with each breath. All parts of the body are scanned for muscular tension of any kind, which is consciously released as it is found, optionally with a small repetitive movement of the area. All control of the breath, the mind, and the body is then released for the duration of the asana, typically 10 minutes although often less in Western yoga classes.

The asana is released by slowly deepening the breath, flexing the fingers and toes, reaching the arms above the head, stretching the whole body, exhaling, bringing the knees to the chest and rolling over to the side in a fetal position. After a short time and a slow inhalation, the practitioner takes a seated position. This is practiced for 10 minutes.

Total time duration is 30 minutes per day for single session extending for 15 days by using demonstration method, to reduce level of fatigue and insomnia in patients with hemodialysis.

Fatigue:

Extreme tiredness resulting from mental or physical exertion or illness.

Rod Ferris.,(2014)

In this study, it refers to, tiredness experienced by patients with hemodialysis, which was measured by using fatigue severity scale (FSS) (Belmont et al.,2006) and its scores.

Insomnia

Insomnia is the prolonged and usefully abnormal inability to obtain adequate sleep.

Mayo Clinic.,(2006)

In this study insomnia refers to sleep disturbences,and inability to obtain adequate sleep experienced by patients with hemodialysis, which was measured by using Insomnia severity index Scale and its scores.

Hemodialysis:-

Dialysis of soluble and water from the blood by diffusion through a semi permeable membrane, separation of cellular element and colloids from soluble resistances is achieved by pore size in the membrane and rates of diffusion.

Shaldon. S., (2003)

Patients with Hemodialysis;-

A patient who receives medical attention, care or treatment of hemodialysis for chronic renal failure.

Fayed.L., (2009)

In this study, it refers to patients undergoing hemodialysis, as in patients, with a minimum stay of 16 days.

HYPOTHESES

H_1: The mean post test level of fatigue scores is significantly lower than the mean pre test level of fatigue scores among patients with hemodialysis.

H_2: The mean post test level of insomnia scores is significantly lower than the mean pre test level of insomnia scores among patients with hemodialysis.

H_3: There will be a significant association between the post test level of fatigue scores and their selected demographic variables among patients with haemodialysis.

H_4: There will be a significant association between post test level of insomnia scores and their selected demographic variables among patients with haemodialysis.

ASSUMPTION

- ❖ Hemodialysis patients may experience fatigue and insomnia after the treatment.
- ❖ Patients with hemodialysis, may have anemia due to inadequate erythropoisis which leads to fatigue.
- ❖ Nurses play a vital role in reducing fatigue and insomnia among patients with hemodialysis.

DELIMITATION

This study is delimited to,

- Data collection period was only 6 weeks.
- Sample size was limited to 60.

PROJECTED OUTCOME

Hatha yoga will help to reduce the level of fatigue and insomnia among patients with hemodialysis. Hatha yoga has therapeutic, preventive, and protective effects in hemodialysis patients, thereby it reduces fatigue and insomnia and promotes comfort and improves the activities of daily living among patients with hemodialysis.

CONCEPTUAL FRAMEWORK

Conceptual framework helps to express about ideas in a more reality. Conceptual framework for this study was direction from **Wiedenbach's Helping Art of Clinical Nursing Theory (1964).**

According to Ernestine Wiedenbach's nursing is nurturing and caring for someone in a motherly fashion .Nursing is a helping service that is rendered with compassion, skill and understanding to those in need for care ,counsel and confidence in the area of health .The practice of nursing comprises a wide variety of services each directed toward the attainment of one of its three components.

Step I **:** Identification of a need for help

Step II **:** Ministration the help needed

Step III **:** Validation that the need for help was met

CENTRAL PURPOSE

According to theorist the nurses central purpose defines the quality of health nurses desires to effect or sustain in patients and specifies what recognizes to be nurse special responsibility in caring for the patient. In this study, the central purpose is to reduce the level of fatigue and insomnia among the patients with hemodialysis.

STEP I : IDENTIFICATION OF A NEED FOR HELP

According to theorist within the identification component there are four distinct steps. First, the nurse observes the patient, looking for an inconsistency between the expected behavior of the patient and the apparent behavior .Second attempts to clarify what the inconsistency means .Third, determines the cause of inconsistency finally, evaluated with the patient that help is needed.

In this study, the demographic variables are age, sex, marital status, educational status, occupation, religion monthly income, type of family, area of residence, duration of illness, duration of treatment on hemodialysis, cycle of hemodialysis per mont. The Pre test assessment of level of fatigue and insomnia among patient with hemodialysis by using the questionnaire method.

STEP II : MINISTRATION THE HELP NEEDED

According to the theorist in ministry of the patient the nurse give advice or information make referral apply a comfort measure, or carry out therapeutic procedure. The nurse will need to identify the cause and if necessary make an adjustment in the plan of action.

Ministration of help needed, it has two components.

a) Prescription

b) Realities

a) Prescription

According to the theorist a prescription is a directive activity. It specifies both the nature of the action that will most likely lead to fulfillment of the nurses central purposes and the thinking process that determines it.

In this study the prescription, is plan of care to achieve the purpose which includes administration of hatha yoga exercise to reduce the fatigue and insomnia among the patients with hemodialysis. The duration of hatha yoga exercise is 30 minutes. It is continued for 15 days.

b) Realities

According to the theorist the realities of the situation in which the nurse is to provide nursing care. Realities consist of all factors physical, psychological, emotional and spiritual that is at play in a situation in which nursing action occur at any given moment. Wiedenbach's defines the five realities as the agent, the recipient the goal, the mean and the framework.

i. Agent

According to theorist, the agent is the practicing nurse or delegate is characterized by the personal attributes ,capacities , and most importantly commitment and competencies in nursing.

In this study the investigator is the agent.

ii. Recipient

According to theorist, the recipient is the patient is characterized by personal attributes, problems, capacities, aspirations and most important the ability to cope with the concerns or problems being experienced.

In this study, the recipients are the patient with hemodialysis.

iii. Goal

According to the theorist, the goal is the desired outcome the nurse wishes to achieve. The goal is the end result to be attained by the nursing action.

In this study, it refers to reduce the level of fatigue and insomnia among the patients with hemodialysis.

iv. Means

According to theorist, the means comprise the activities and devices through which the practitioner is enabled to attain the goal. The means include skills, techniques, procedures and devices that may be used to facilitate nursing practice.

In this study, it refers to administration of Hatha yoga, by using demonstration method, individually for 30 minutes once a day, for 15 days.

v. Framework

According to the theorist, the framework consists of human, environmental, professional and organizational facilities that not only make up the context within which nursing is practiced but also constitute its currently existing limits. In this study, it refers to the Nallaswamy Hospital at Erode.

STEP III : VALIDATION THAT NEED FOR HELP WAS MET

According to the theorist, the third component is validation. After the help has been ministered, the nurses validates that the action were indeed helpful. Evidence must come from the patient that the purpose of the nursing action has fulfilled.

In this study, the validation need for help was met by means of post test assessment of level of fatigue and insomnia among the patients with hemodialysis, by using the fatigue severity scale and insomnia severity index questionnaire method.

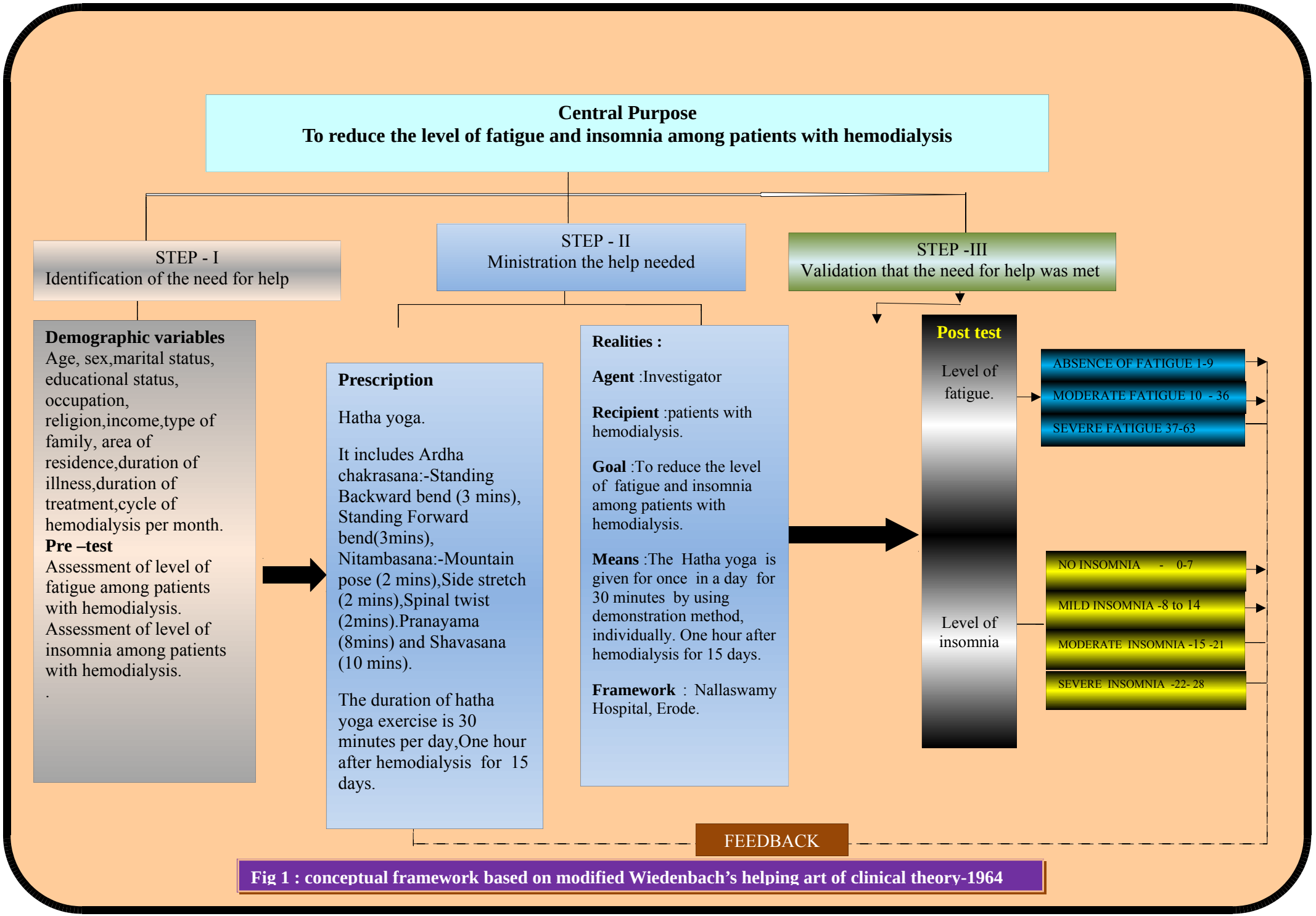


Fig 1 : conceptual framework based on modified Wiedenbach's helping art of clinical theory-1964

CHAPTER-II
REVIEW OF LITERATURE

This chapter deals with the related review of literature. The literatures are classified under the following headings:

PART - I

Overview of

a) Haemodialysis

b) Fatigue and insomnia among patients with hemodialysis

c) Hatha Yoga

PART- II

Section A **:** Studies related to incidence and prevalence of hemodialysis.

Section B : Studies related to effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis.

Section C : Studies related to nurses role on Hatha yoga among patients with hemodialysis

PART – I

a) OVERVIEW OF HEMODIALYSIS

INTRODUCTION

Chronic renal failure or chronic kidney disease, describes the gradual loss of kidney function. The kidneys filter wastes and excess fluids from the blood, which are then excreted in the urine. When chronic kidney disease reaches an advanced stage, dangerous levels of fluid, electrolytes and wastes can build up in our body. The signs and symptoms of chronic kidney disease develop over time if kidney damage progresses slowly, nausea and vomiting, fatigue and weakness, sleep problems, changes in urine output, swelling of feet and ankles, muscle twitches and cramps, signs and symptoms may not appear

until irreversible damage has occurred. Chronic kidney disease occurs when a disease or condition impairs kidney function, causing kidney damage to worsen over several months or years, the causes like high blood pressure, glomerulonephritis, an inflammation of the kidney's filtering units (glomeruli), Polycystic kidney disease. Prolonged obstruction of the urinary tract, from conditions such as enlarged prostate, kidney stones and some cancers, these are all the some major causes which involved in the chronic renal failure. Depending on the underlying cause, some types of kidney disease can be treated. Chronic kidney disease has no cure. In general, treatment consists of measures to help control signs and symptoms, reduce complications, and slow progression of the disease. Treatment for chronic kidney disease focuses on slowing the progression of the kidney damage, usually by controlling the underlying cause. Chronic kidney disease can progress to end-stage kidney failure, which is fatal without artificial filtering (dialysis) or a kidney transplantation.

M.C. Keller .,(2006)

DEFINITION

Hemodialysis is a treatment for those patients whose kidneys cannot function anymore. It is a way of cleansing the blood of toxins, extra salts and fluids through a dialysis machine called "artificial kidney". It helps maintain proper chemical balance such as potassium, sodium and chloride and keeps blood pressure under control.

Hass.K., (2009)

INCIDENCE

The prevalence of Haemodialysis treated End stage renal disease (ESRD) was 624 per million populations (pmp). 85% of prevalent patients were aged <65 years and 58% were male. The prevalence of ESKD varied considerably with age with a peak at 55–64 years (2475 pmp for males; 2197pmp for females). The annual incidence rate was 282pmp with some

regional variation and a substantially higher rate in the South (617pmp). The number of incident dialysis cases crose 3.3 percent in 2009, to 113,636; with 2,759 patients receiving a pre-emptive transplant as their first ESRD modality, 116,395 total patients began ESRD therapy in 2009. More than 106,000 dialysis patients started ESRD treatment on hemodialysis.The prevalent population included 370,274 patients on hemodialysis population, an increase of 2.1 percent from 2008, and consistent with a similarly per year since 2002.

William. A. Alashek., (2012)

Indications for Hemodialysis:-

- Pericarditis
- Fluid overload or pulmonary edema refractory to diuretics
- Accelerated hypertension poorly responsive to antihypertensives
- Progressive uremic encephalopathy or neuropathy such as confusion, asterixis, myoclonus, wrist or foot drop, seizures
- Bleeding attributable to uremia.

Principles of hemodialysis:-

- The principle of hemodialysis is the same as other methods of dialysis; it involves diffusion of solutes across a semipermeable membrane. Hemodialysis utilizes counter current flow, where the dialysate is flowing in the opposite direction to blood flow in the extracorporeal circuit. Counter-current flow maintains the concentration gradient across the membrane at a maximum and increases the efficiency of the dialysis.
- Osmosis is a chemical process by which dissolved chemicals will migrate from an area of high concentration to one of low concentration. Essentially if you dissolve something in a liquid, the dissolved compounds (called solutes) will spread out until there is an equal concentration of solute everywhere.

- In diffusion dialysis, the potential of a concentration difference is also instrumental for mass transfer but pore-free ion exchange membranes are used in this case. Hence, free strong acids (acid dialysis) can be recovered by using anion exchange membranes and free strong bases (base dialysis) by using cation exchange membranes.
- Fluid removal (ultrafiltration) is achieved by altering the hydrostatic pressure of the dialysate compartment, causing free water and some dissolved solutes to move across the membrane along a created pressure gradient.
- The dialysis solution that is used may be a sterilized solution of minaral ions or pharmacopoeia. Urea and other waste products, potassium, and phosphate diffuse into the dialysis solution. However, concentrations of sodium and chloride are similar to those of normal plasma to prevent loss. Sodium bicarbonate is added in a higher concentration than plasma to correct blood acidity. A small amount of glucose is also commonly used.

Note that this is a different process to the related technique of hemofiltration.

B.Braun A.G., (2012)

Types of hemodialysis:-

There are three types of hemodialysis: conventional hemodialysis, daily hemodialysis, and nocturnal hemodialysis.

Conventional hemodialysis:

Chronic hemodialysis is usually done three times per week, for about 3–4 hours for each treatment, during which the patient's blood is drawn out through a tube at a rate of 200-400 mL/min. The tube is connected to a 15, 16, or 17 gauge needle inserted in the dialysis fistula or graft, or connected to one

port of a dialysis catheter. The blood is then pumped through the dialyzer, and then the processed blood is pumped back into the patient's bloodstream through another tube (connected to a second needle or port). During the procedure, the patient's blood pressure is closely monitored, and if it becomes low, or the patient develops any other signs of low blood volume such as nausea, the dialysis attendant can administer extra fluid through the machine. During the treatment, the patient's entire blood volume (about 5000 cc) circulates through the machine every 15 minutes. During this process, the dialysis patient is exposed to a week's worth of water for the average person.

Daily hemodialysis:

Daily hemodialysis is typically used by those patients who do their own dialysis at home. It is less stressful (more gentle) but does require more frequent access. This is simple with catheters, but more problematic with fistulas or grafts. The "buttonhole technique" can be used for fistulas requiring frequent access. Daily hemodialysis is usually done for 2 hours six days a week.

Nocturnal hemodialysis:

The procedure of nocturnal hemodialysis is similar to conventional hemodialysis except it is performed three to six nights a week and between six and ten hours per session while the patient sleeps.

Gulabi Kheer.,(2013)

Access:

In hemodialysis, three primary methods are used to gain access to the blood: an intravenous catheter, an arteriovenous fistula (AV) or a synthetic graft. The type of access is influenced by factors such as the expected time course of a patient's renal failure and the condition of the vasculature. Patients may have multiple accesses, usually because an AV fistula or graft is maturing and a catheter is still being used. The creation of all these three major types of vascular accesses requires surgery.

Catheter

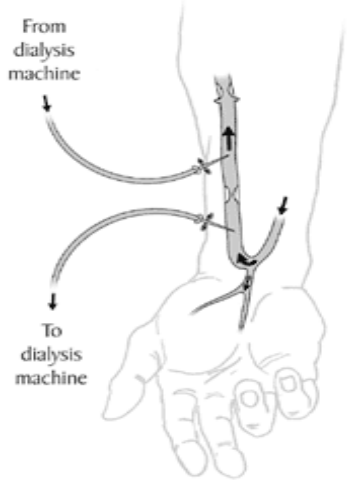
Catheter access, sometimes called a CVC (Central Venous Catheter), consists of a plastic catheter with two lumens (or occasionally two separate catheters) which is inserted into a large vein (usually the vena cava, via the internal jugular vein or the femoral vein) to allow large flows of blood to be withdrawn from one lumen, to enter the dialysis circuit, and to be returned via the other lumen. However, blood flow is almost always less than that of a well functioning fistula or graft.

Catheters are usually found in two general varieties, tunnelled and non-tunnelled.

- **Non-tunnelled** - catheter access is for short-term access (up to about 10 days, but often for one dialysis session only), and the catheter emerges from the skin at the site of entry into the vein.
- **Tunnelled-** catheter access involves a longer catheter, which is tunnelled under the skin from the point of insertion in the vein to an exit site some distance away. It is usually placed in the internal jugular vein in the neck and the exit site is usually on the chest wall. The tunnel acts as a barrier to invading microbes, and as such, tunnelled catheters are designed for short- to medium-term access (weeks to months only), because infection is still a frequent problem.

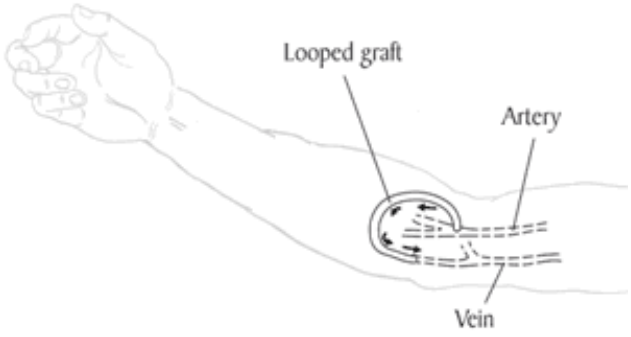
Catheter access is usually used for rapid access for immediate dialysis, for tunnelled access in patients who are deemed likely to recover from acute renal failure, and for patients with end-stage renal failure who are either waiting for alternative access to mature or who are unable to have alternative access.

Arteriovenous fistula or AV fistula:-



A fistula (also called an arteriovenous fistula or A-V fistula) is made by joining an artery and a vein under the skin in your arm. When the artery and vein are joined, the pressure inside the vein increases, making the walls of the vein stronger. The stronger vein can then receive the needles used for hemodialysis. An A-V fistula usually takes 3 to 4 months to heal before it can be used for hemodialysis. The fistula can be used for many years.

Arteriovenous graft or A-V graft:-



A graft (also called an arteriovenous graft or A-V graft) is made by joining an artery and vein in your arm with a plastic tube. The plastic tube is placed in a U-shaped loop under your skin, joining the radial artery to a vein near the elbow. The graft is usually ready to use about 3 weeks after the surgery. A-V grafts are usually not as long lasting as A-V fistulas, but a well-cared-for graft can last several years.

- AV (arteriovenous) fistulas are recognized as the preferred access method. To create a fistula, a vascular surgeon joins an artery and a vein together through anastomosis. Since this bypasses the capillaries, blood flows rapidly through the fistula. One can feel this by placing one's finger over a mature fistula. This is called feeling for "thrill" and produces a distinct 'buzzing' feeling over the fistula.
- Fistulas are usually created in the nondominant arm and may be situated on the hand (the 'snuffbox' fistula'), the forearm (usually a radiocephalic fistula, or so-called Brescia-Cimino fistula, in which the radial artery is anastomosed to the cephalic vein), or the elbow (usually a brachiocephalic fistula, where the brachial artery is anastomosed to the cephalic vein). Though less common, fistulas can also be created in the groin, though the creation process differs. Placement in the groin is usually done when options in the arm and hands are not available due to anatomy or the failure of fistulas previously created in the arms/hands. A fistula will take a number of weeks to mature, on average perhaps 4–6 weeks.

During treatment, two needles are inserted into the fistula, one to draw blood and one to return it. The orientation of the needles takes the normal flow of the blood into account. The "arterial" needle draws blood from the "upstream" location while the "venous" needle returns blood "downstream". Switching this order leads to partial recycling of the same blood through the dialysis machine leading to less effective treatment.

The advantages of the AV fistula:

- Lower infection rates, because no foreign material is involved in their formation

- Higher blood flow rates (which translates to more effective dialysis).
- Lower incidence of thrombosis formation.

The complications of the AV fistula:

- A fistula has a very high blood flow and the vasculature that supplies the rest of the limb is poor
- A steal syndrome can occur, where blood entering the limb is drawn into the fistula and returned to the general circulation without entering the limb's capillaries. (This results in cold extremities of that limb, cramping pains, and, if severe, tissue damage)
- The development of an aneurysm (a bulging in the wall of the vein where it is weakened by the repeated insertion of needles over time).

To prevent damage to the fistula and aneurysm or pseudoaneurysm formation, it is recommended that the needle be inserted at different points in a rotating fashion. Another approach is to cannulate the fistula with a blunted needle, in exactly the same place. This is called a 'buttonhole' approach. Often two or three buttonhole places are available on a given fistula. This also can prolong fistula life and help prevent damage to the fistula.

Abel.,(2011)

HEMODIALYSIS MACHINE:

Equipments

The hemodialysis machine pumps the patient's blood and the dialysate through the dialyzer. The newest dialysis machines on the market are highly computerized and continuously monitor an array of safety-critical parameters, including blood and dialysate flow rates; dialysis solution conductivity, temperature, and pH, and analysis of the dialysate for evidence of blood leakage or presence of air. Any reading that is out of normal range triggers, an audible alarm to alert the patient-care technician who is monitoring the patient.

Water system

An extensive water purification system is absolutely critical for hemodialysis. Since dialysis patients are exposed to vast quantities of water, which is mixed with dialysate concentrate to form the dialysate, even trace mineral contaminants or bacterial endotoxins can filter into the patient's blood. Because the damaged kidneys cannot perform their intended function of removing impurities, ions introduced into the bloodstream. via water can build up to hazardous levels, causing numerous symptoms or death. Aluminum, chloramine, fluoride, copper, and zinc, as well as bacterial fragments and endotoxins, have all caused problems in this regard.

For this reason, water used in hemodialysis is carefully purified before use. Initially it is filtered and temperature-adjusted and its pH is corrected by adding an acid or base. Then it is softened. Next the water is run through a tank containing activated charcoal to adsorb organic contaminants. Primary purification is then done by forcing water through a membrane with very tiny pores, a so-called reverse osmosis membrane. This lets the water pass, but holds back even very small solutes such as electrolytes.

Final removal of leftover electrolytes is done by passing the water through a tank with ion-exchange resins, which remove any leftover anions or

cations and replace them with hydroxyl and hydrogen molecules, respectively, leaving ultrapure water.

Even this degree of water purification may be insufficient. The trend lately is to pass this final purified water (after mixing with dialysate concentrate) through a dialyzer membrane. This provides another layer of protection by removing impurities, especially those of bacterial origin, that may have accumulated in the water after its passage through the original water purification system.

Once purified water is mixed with dialysate concentrate, its conductivity increases, since water that contains charged ions conducts electricity. During dialysis, the conductivity of dialysis solution is continuously monitored to ensure that the water and dialysate concentrate are being mixed in the proper proportions. Both excessively concentrated dialysis solution and excessively dilute solution can cause severe clinical problems.

Dialyzer

The dialyzer is the piece of equipment that actually filters the blood. Almost all dialyzers in use today are of the hollow-fiber variety. A cylindrical bundle of hollow fibers, whose walls are composed of semi-permeable membrane, is anchored at each end into potting compound (a sort of glue).

This assembly is then put into a clear plastic cylindrical shell with four openings. One opening or blood port at each end of the cylinder communicates with each end of the bundle of hollow fibers. This forms the "blood compartment" of the dialyzer. Two other parts are cut into the side of the cylinder. These communicate with the space around the hollow fibers, the "dialysate compartment." Blood is pumped via the blood ports through this bundle of very thin capillary-like tubes, and the dialysate is pumped through

the space surrounding the fibers. Pressure gradients are applied when necessary to move fluid from the blood to the dialysate compartment.

Membrane and flux

Dialyzer membranes come with different pore sizes. Those with smaller pore size are called "low-flux" and those with larger pore sizes are called "high-flux." Some larger molecules, such as beta-2-microglobulin, are not removed at all with low-flux dialyzers; lately, the trend has been to use high-flux dialyzers. However, such dialyzers require newer dialysis machines and high-quality dialysis solution to control the rate of fluid removal properly and to prevent backflow of dialysis solution impurities into the patient through the membrane.

Dialyzer membranes used to be made primarily of cellulose. The surface of such membranes was not very biocompatible, because exposed hydroxyl groups would activate complement in the blood passing by the membrane. Therefore, the basic, "unsubstituted" cellulose membrane was modified. One change was to cover these hydroxyl groups with acetate groups, another was to mix in some compounds that would inhibit complement activation at the membrane surface. The original "unsubstituted cellulose" membranes are no longer in wide use, whereas cellulose acetate and modified cellulose dialyzers are still used. Cellulosic membranes can be made in either low-flux or high-flux configuration, depending on their pore size.

Another group of membranes is made from synthetic materials, using polymers such as polyarylethersulfone, polyamide, polyvinylpyrrolidone, polycarbonate, and polyacrylonitrile. These synthetic membranes activate complement to a lesser degree than unsubstituted cellulose membranes. Synthetic membranes can be made in either low- or high-flux configuration, but most are high-flux.

M.C. Creger.,(2009)

Nanotechnology is being used in some of the most recent high-flux membranes to create a uniform pore size. The goal of high-flux membranes is to pass relatively large molecules such as beta-2-microglobulin , but not to pass albumin . Every membrane has pores in a range of sizes. As pore size increases, some high-flux dialyzers begin to let albumin pass out of the blood into the dialysate.

Dialyzer size and efficiency

Dialyzers come in many different sizes. A larger dialyzer with a larger membrane area will usually remove more solutes than a smaller dialyzer, especially at high blood flow rates. This also depends on the membrane permeability coefficient K_0 for the solute in question. So dialyzer efficiency is usually expressed as the K_0A - the product of permeability coefficient and area. Most dialyzers have membrane surface areas of 0.8 to 2.2 square meters, and values of K_0A ranging from about 500 to 1500 mL/min. K_0A, expressed in mL/min, can be thought of as the maximum clearance of a dialyzer at very high blood and dialysate flow rates.

Reuse of dialyzers

The dialyzer may either be discarded after each treatment or be reused. Reuse requires an extensive procedure of high-level disinfection. Reused dialyzers are not shared between patients. There was an initial controversy about whether reusing dialyzers worsened patient outcomes. The consensus today is that reuse of dialyzers, if done carefully and properly, produces similar outcomes to single use of dialyzers.

Dialyzer Reuse is a practice that has been around since the invention of the product. This practice includes the cleaning of a used dialyzer to be reused multiple times for the same patient. Dialysis clinics reuse dialyzers to become more economical and reduce the high costs of “single-use” dialysis which can be extremely expensive and wasteful. Single used dialyzers are initiated just

once and then thrown out creating a large amount of bio-medical waste with no mercy for cost savings. If done right, dialyzer reuse can be very safe for dialysis patients.

Points to ways of reusing dialyzers

- Manual
- Automated.

Manual: reuse involves the cleaning of a dialyzer by hand. The dialyzer is semi-disassembled then flushed repeatedly before being rinsed with water. It is then stored with a liquid disinfectant for 18+ hours until its next use.

These devices are beneficial to dialysis clinics that practice reuse – especially for large dialysis clinical entities – because they allow for several back to back cycles per day. The dialyzer is first pre-cleaned by a technician, then automatically cleaned by machine through a step-cycles process until it is eventually filled with liquid disinfectant for storage.

Automated: Reuse is more effective than manual reuse. When reused over 15 times with current methodology, the dialyzer can lose middle molecule clearance and fiber pore structure integrity, which has the potential to reduce the effectiveness of the patient's dialysis session. Currently, as of 2010, newer, more advanced reprocessing technology has proven the ability to completely eliminate the manual pre-cleaning process altogether and has also proven the potential to regenerate(fully restore) all functions of a dialyzer to levels that are approximately equivalent to single-use for more than 40 cycles.

T.Galy., (2008)

Fluid calculation for hemodialysis

The removal of excess fluid during dialysis by intradialytic ultrafiltration is the cornerstone of volume management in hemodialysis patients. This

implies that the nurse performing the treatment has to ensure that the patient comes off dialysis normovolemic, which is at the dry weight. The term dry weight (also known as ideal weight or target weight). The dry weight is essential to enable the nurse to determine the amount of fluid removal required during dialysis. One kilogram is equal to one litre of body fluid, meaning that patient weight is a simple and accurate measure of fluid gain between dialysis treatments. The formula

actual weight – dry weight = weight gain + fluid intake during treatment = total fluid to remove during dialysis

Is used to calculate the required fluid removal. Thus, the amount of fluid that is ultra-filtrated during the subsequent hemodialysis session is equivalent to the magnitude of weight gain between treatments with supplying fluids during the treatment session.

Raimann.,*(*2008)

Advantages and disadvantages of hemodialysis

Advantages

- Low mortality rate
- Better control of blood pressure and abdominal cramps
- Less diet restriction
- Better solute clearance effect for the daily hemodialysis: better tolerance and fewer complications with more frequent dialysis.

Disadvantages

- Restricts independence, as people undergoing this procedure cannot travel around because of supplies' availability
- Requires more supplies such as high water quality and electricity
- Requires reliable technology like dialysis machines

M.C. Keller.,(2013)

Complications of hemodialysis

Low blood pressure

- Low blood pressure occurs when too much fluid is removed from the blood during hemodialysis. This causes pressure to drop, and nausea and dizziness can result.

Muscle cramps

- Patients sometimes experience muscle cramps while undergoing hemodialysis. These muscle cramps, usually in the legs, can be uncomfortable or sometimes painful.
- The exact cause of muscle cramps can vary from patient to patient. Sometimes when fluid is taken out of the body at a fast rate during dialysis or too much fluid is removed, the muscles react by cramping.

Infection and clotting

- Proper care for the access (either a fistula or a graft) is important in hemodialysis. The access can become infected or inflamed. Pressure on the access (from clothing or from sleeping on the side where the access is located) can cause the site to become irritated. Keeping the area clean can help prevent infection.
- An access can become clotted with blood. Clotting prevents blood flow, so that a patient will not be able to get dialysis treatment. Patients are advised to monitor the access daily by checking for the thrill (the pulse feeling in the fistula or graft) to ensure it is working properly.

Itching

- Many dialysis patients complain about itchy skin. There may be several causes, but it is commonly thought that high phosphorous levels are responsible for this side effect. Phosphorous is not

effectively removed by dialysis. That's why foods with phosphorus are restricted on the renal diet.

- ❖ Dialysis patients are also prone to dry skin, which can be the cause of itching. Using very hot water for showers or baths can dry skin more. Harsh soaps can cause irritation and more itching. Moisturizing creams can alleviate some of the discomfort.

Anemia

- The red blood cell volume in dialysis patients (especially hemodialysis patients) is often lower then normal. This is due to reduced levels of the hormone erythropoietin, which is produced by the kidneys and regulates red blood cell production. Medication to treat the anemia is commonly used by dialysis patients.

Electrolyte Imbalance

- This will almost certainly be detected via the normal blood tests conducted on dialysis patients. There are a variety of vital electrolytes (ionic species) in the blood that control a number of bodily process. This condition is uncommon when patients with end-stage renal disease (ESRD) are compliant with treatment and diet, unless an intercurrent illness such as acidosis or sepsis develops.

RachelAhmed.,(2010)

Nurses role of hemodialysis

Pre hemodialysis nursing care

- The dialysis nurse should following inductive data analysis of the hemodialysis patients and general condition were identified.
- To provide adequate education and support to the patients.

- The importance of good inter-professional relationships and support from the patients.
- To check the any allergic reaction and vital sings of the patient.
- To check the weight measurement of the patients.
- Remove any restrictive clothing or jewelry from the arm.

During hemodialysis nursing care

- To prevent injuries, place an armband on the patient or a sign over the bed that means no BP measurements, venipunctures, or injections on the affected side.
- Perform hand hygiene before you assess or touch the vascular access.
- Assess for patency at least every 8 hours.
- Palpate the vascular access to feel for a thrill or vibration that indicates arterial and venous blood flow and patency.
- Auscultate the vascular access with a stethoscope to detect a bruit or "swishing" sound that indicates patency.
- Check the patient's circulation by palpating pulses distal to the vascular access,observing capillary refill in fingers, and assessing for numbness, tingling, altered sensation, coldness, and pallor in the affected extremity.
- Assess the vascular access for signs and symptoms of infection such as redness, warmth, tenderness, purulent drainage, open sores, or swelling. Patients with hemodialysis are at increased risk of infection.

Post hemodialysis nursing care

- After dialysis, assess the vascular access for any bleeding or hemorrhage.
- When the patient move or help with ambulation, avoid trauma to or excessive pressure on the affected arm.

- Assess for blebs (ballooning or bulging) of the vascular access that may indicate an aneurysm that can rupture and cause hemorrhage.
- Monitor serum electrolytes, blood urea nitrogen, creatinine, and hemoglobin and hematocrit levels before and after dialysis.
- Monitor fluid status. Monitor coagulation studies because heparin is used to prevent clotting during dialysis.

Teach the patient about hemodialysis

- To make sure that dialysis needlestick locations are rotated to prevent stenosis and thrombus formation
- To check the function of the vascular access several times a day by palpating it and feeling for vibration
- To monitor for any bleeding after dialysis.
- To monitor for signs of infection
- To keep the site always clean.
- To avoid wearing any clothing or jewelry that restricts the access and to prevent anyone from using the extremity to obtain BP or perform venipuncture
- Not to use the arm with vascular access to carry heavy objects and not to sleep on the arm
- Not to use any creams and lotions on the vascular access site.
- Document assessment findings, any interventions and patient responses.

Allon. M. Robbin.,(2009)

b).FATIGUE

DEFINITION

Fatigue (also called exhaustion, lethargy, languidness,languor,lassitude and listlessness)is a state of awareness describing arrange of afflictions,usually

associated with physical and mental illness, through varying from general state of lethargy to a specific work-induced**.**

Emilia.,(2011)

FACTORS OF FATIGUE IN HEMODIALYSIS

There are many challenges renal providers face when attempting to reduce fatigue in dialysis patients. The lack of a reliable, valid, and sensitive fatigue scale complicates the accurate identification of this symptom, Moreover, many chronic health conditions common in the long-term dialysis population may lead to the development of fatigue and contribute to the day-to-day and diurnal variation of fatigue in patients.

Some of the factors which involving the fatigue in hemodialysis patient.

- **Inflammation and Fatigue**, symptoms such as fatigue, and changes in pro-inflammatory cytokines, patients have overproduction of cytokines by peripheral blood mononuclear cells (PBMCs) secondary to chronic activation by interaction with dialysis membranes.
- **Anemia and Fatigue,** anemia, resulting from reduced erythropoietin production, has been cited as an important contributor to fatigue in both the dialysis population and other chronic conditions.
- **Biochemical markers and Fatigue,** Uremia may lead to protein and energy malnutrition, nausea, and loss of appetite, which can all contribute to fatigue.
- **Post-dialysis Fatigue,** Ultrafiltration, diffusion, osmotic disequilibrium, changes in blood pressure, blood membrane interactions, higher levels of tumor necrosis factor and psychological factors like depression have all been implicated in the pathogenesis of post-dialysis fatigue.

- **Sleep and Fatigue,** Dialysis patients have high rates of sleep apnea, insomnia, restless legs syndrome and excessive daytime sleepiness, other symptoms, such as restless legs, which are common in dialysis patients and affect sleep quality, may also impact vitality.
- **Depression and Fatigue,** Depression has been found to be associated with changes in cellular and humoral immunity including decreased T lymphocyte proliferation, NK cell activity as well as increased production of IL-1, IL-6, and IFN-gamma**.**
- **Physical Inactivity and Fatigue,** In obesity, which has been described as a chronic inflammatory state, may also mediate alterations in levels of certain cytokines leading to fatigu**e.**

Meyers. C.A.,(2006)

Other associated symptoms with fatigue include

- ♣ weight loss,
- ♣ chest pain and shortness of breath,
- ♣ vomiting and diarrhea,
- ♣ fever and chills,
- ♣ muscle weakness or pain,
- ♣ anxiety and depression.

Clinical manifestations of fatigue

- General feeling of tiredness.
- Reduction in vigilance.
- Growing and irresistible need to sleep.
- Lethargy
- Lack of concentration

Deborah.,(2010)

Management of fatigue in hemodialysis

- Practice physical and breathing exercise regularly.
- Spend time outdoors in the sunshine and fresh air
- Eat delicious food
- Reduse stress
- Get plenty of rest.

MEDICATIONS AND THERAPY FOR FATIGUE

Treatment and drugs:

Medications for fatigue

The chronic fatigue affects people in many different ways,according to the Symptom relief may include certain medications:

- **Antidepressants.** The problems associated with chronic fatigue, Low doses of some anti depressants also can help improve sleep and relieve pain.
- **Sleeping pills.** If home measures, such as avoiding caffeine, It will better rest at night, might suggest trying prescription sleep aids

Therapy for fatigue

- **Yoga (or) Graded exercise.** A physical therapist can help determine the Inactive people often begin with range-of-motion and stretching exercises for just a few minutes a day.
- **Psychological counseling.** Talking with a counselor can help the figure out options to work around some of the limitations that chronic fatigue is an imposes, Feeling more in control of the life can improve the outlook dramatically,

Nursing role for fatigue

- Assess the general condition of the patients.
- The nurse need to identify and assess fatigue in patients receiving dialysis, vital of the patient health, and quality outcomes of the patient.
- The nurse help the patients to develop strategies and manage its effects.
- The nurse should check evaluation of patient medications and lab results, and the nursing interventions.

Practice Nurses largely important the potential development of their role in this area, but identified barriers and training needs which must be addressed to enable them to feel confident managing of patients with fatigue.

Broscious .S.K.,(2008)

INSOMNIA

DEFINITION:

The perception or complaint of inadequate or poor quality sleep due to a number of factors, such as difficulty falling asleep, waking up frequently during the night with difficulty returning to sleep, waking up too early in the morning, or un refreshing sleep.

CAUSES OF INSOMNIA IN HEMODIALYSIS

Insomnia is one of the most common problems in hemodialysis patients.

Some of the causes of insomnia in hemodialysis patients are thought to be:

- uremic toxicity (toxins in the blood),
- secondary hyperparathyroidism (excessive secretion of parathyroid hormone (PTH) by theparathyroid glands),
- chronic hypoxia (inadeguate oxygen) due to anemia,

- restless leg syndrome,
- inadequate dialysis (not getting sufficient blood cleaning),
- Excessive sleeping during or after hemodialysis treatments,
- Sleep Apnea (abnormal breathing during sleep),
- emotional issues such as depression.

Devan texas.,(2013)

Symptoms of insomnia

- Sleepiness during the day
- General tiredness
- Irritability
- Problems with concentration or memory

Mayo clinic.,(2014)

INSOMNIA ALTERNATE SLEEP REMEDIES

The alternative therapies for sleep disorders, such as insomnia. These sleep remedies include:

- **Meditation:** The practice of meditation can reduce stress, which helps promote healthy sleep. Meditation may actually develop parts of the brain that help regulate physical health, including healthy sleep.
- **Light therapy:** As a sleep remedy, light therapy takes advantage of the fact that our sleep-wake cycle is driven by light and dark (called the circadian rhythm).
- **Melatonin:** The hormone that regulates our sleep-wake cycle is called melatonin, which drops during the day and rises at night. There's evidence that melatonin receptor drugs can help restore sleep cycles disrupted by jet lag.

- **Yoga:** Yoga uses breathing exercises, meditation, and philosophical principles to enhance a person's mental and physical well-being.
- **Acupuncture:** Acupuncture involves the stimulation of various points throughout the body. It's difficult to assess the connection between acupuncture and insomnia, on using acupuncture for sleep apnea and insomnia related to stroke or menopause.
- **Biofeedback:** Biofeedback involves the use of devices to help patients learn to control body functions like heart rate and temperature. A National Institutes of Health consensus panel said that this mind-body therapy, among others, could produce significant changes in some components of sleep.

Cynthia Haines. M.D.,(2010)

Nurses role for insomnia

- The nurse to check the patient's sleep pattern and observe the physical circumstances (sleep apnea, airway obstruction)
- The nurse adjust the environment (light, noise, temperature, mattress and bedding) to promote sleep.
- Help to eliminate stressful situations before going to bed
- Discuss techniques to promote sleep with the patient and family. Provide written information, pamphlets on sleep promotion techniques.

Mikel Theobald.,(2011)

C) HATHA YOGA

INTRODUCTION

It's widely known that yoga can enhance the physical and emotional well being, but when Yoga is practiced with a therapeutic intention in the form of Yoga Therapy, it can help prevent and aid recovery from physical and mental ailments. Yoga has long been practiced with therapeutic intentions as

way of transforming both the body and the mind. According to classical texts, most of the problems in our health come from a state of ignorance of who and what we are. By offering a vehicle for self-knowledge, yoga provides an opportunity to become acquainted with our essence, in tune with the Oracle at Delphi's command: "Know them self." From a psychological standpoint, therapy is defined as the possibility of accessing self-knowledge that will enable us to change that what we consider dysfunctional. A number of research studies have proven the effectiveness of Yoga Therapy as developing exactly that type of awareness.

Integrative yoga therapy., (U.S.A.)

DEFINITION

Hatha yoga is the most widely practiced form of yoga in America. It is the branch of yoga which concentrates on physical health and mental well-being. Hatha yoga uses bodily postures (*asanas*), breathing techniques (*pranayama*), and meditation (*dyana*) with the goal of bringing about a sound, healthy body and a clear, peaceful mind. There are nearly 200 hatha yoga postures, with hundreds of variations, which work to make the spine supple and to promote circulation in all the organs, glands, and tissues. Hatha yoga postures also stretch and align the body, promoting balance and flexibility.

DR.Omish.,(2014)

HEALTH BENEFITS OF HATHA YOGA:

- Increased muscle strength and tone and balanced muscular strength on both sides of the body
- Enhanced muscular control of your back and limbs
- Improved posture
- Improved physical coordination and balance
- Relaxation of your shoulders, neck and upper back
- Increased lung capacity and circulation through deep breathing
- Improved concentration

- Improved flexibility

Increased body awareness balanced muscular strength on both sides of the body.

P.J.Mills.,(2010)

Physical

- Decrease pain
- Increase ease of breathing
- Improve ease of movement
- Improve joint mobility
- Decrease risk of falls
- Improve spine / joint stability
- Increase strength and flexibility

Physiological

- Increase circulation (especially peripheral)
- Improve digestion
- Improve immunity
- Increase distal sensation
- Increase amount of O2 in blood
- Regulate heart rate
- Regulate blood pressure
- Regulate respiratory rate

Devayah Park.,(2011)

Psychological

- Increase emotional stability
- Increase confidence
- Reduce depression
- Reduce panic attacks and anxiety
- Reduce fear

- Increase level of alertness and sharpness of mind
- Acceptance of limitations

Other Benefits

- Reducing pain and discomfort, overcoming physical or emotional trauma, and recovering from illness, injury, addiction, or other health concerns.
- Maintaining current health and well being, preventing illness or injury, and increasing flexibility and strength including preparing for, or complementing an existing health maintenance or fitness program.
- Reducing stress, overcoming depression, anxiety, and psychological trauma, and helping to manage and deal with life-threatening illness.
- Personal and or spiritual growth. In the case of spiritual growth, feel it is important to note that the course followed would be initiated by the personnal own interest and complimentary to the personal spiritual practices, beliefs, and preferences.

Devayah Park.,(2011)

HATHA YOGA FOR HAEMODIALYSIS PATIENT

Hatha yoga including Muscle strength, fatigue, night sweats, chills and loss of appetite. A course of Hatha yoga therapy for Haemodialysis patient might include breathing practices, seated stretches, muscle strength, and other standing poses, forward bends and back bends.

STEP-1 Ardha Chakrasana

How to do Standing Backward Bend Ardha Chakrasana

- Stand straight with feet together and arms alongside the body.
- Balance the weight equally on both feet
- Breathing in, extend the arms overhead, palms facing each other.
- Breathing out, gently bend backwards pushing the pelvis forward, keeping the arms in line with the ears, elbows and knees straight, head up, and lifting the chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax.
- Practice this step for 3minutes.

Benefits

- Stretches the front upper torso.
- Tones the arms and shoulder muscles shoulder muscles and also deep flexibility of the muscles.

STEP – 2 Ardha Chakrasana

How to Standing Foreward Bend Ardha Chakrasana

- Stand straight with feet together and arms alongside the body.
- Balance the weight equally on both feet
- Breathing in, extend your arms Foreward Bend the, palms facing each other.

- Breathing out, gently bend backwards pushing the pelvis forward, keeping the arms in line with the ears, elbows and knees straight, head mild down, and lifting the chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax.
- Practice this step for 3minutes

Benefits

- Stretches the front upper torso.
- Tones the arms and shoulder muscles and also deep flexibility of the muscles.

STEP-3 Nitambasana

Mountain Pose (beginning posture)

This pose is the foundation of many yoga postures. The person can practice Mountain Pose anywhere you can stand.

- Stand up straight with the legs hip-width apart. Keep the feet parallel to each other.
- Keep the shoulders tracking down the back and lengthen the back of the neck.
- Engage the leg muscles by lifting the kneecaps.

- Keep the throat soft and relax the jaw.
- Feel centred on both feet. The person can achieve this by slowly rocking subtly from side to side and front to back. Find where the person feel centred on the feet.
- When the person feel centred, stop rocking and focus on the breathing.
- Inhale through the nose, filling the lungs from bottom to top.
- Take 5 to 10 breaths in this way, checking in with how the body is feeling
- Practice this step for 2minutes

BENEFITS OF MOUNTAIN POSE

- Strengthens thighs, knees, and ankles
- Increases awareness
- Steadies breathing
- Increases strength, power, and mobility in the feet, legs, and hips
- Firms abdomen and buttocks
- Relieves sciatica
- Reduces flat feet
- Develops strength and flexibility simultaneously, especially in the spine
- Relieves tension, aches, and pains throughout the body
- Improves blood circulation
- Encourages healthy digestion and elimination
- Leaves you feeling refreshed and rejuvenated
- Expels dullness and depression

STEP-4 Nitambasana (side stretch)

This posture brings awareness to the lateral planes of the body and helps to open the shoulders.

- Begin in Mountain Pose, standing with the feet parallel.
- Inhale and lift both arms overhead with the palms facing each other.
- The person can also keep the arms bent, with the hands on the hips if keeping the hands above the head feels like the person are stretching too deeply.
- Gently bend from the waist to the right, feeling a stretch along the left side of the body.
- Focus on keeping the left leg grounded into the earth beneath.
- Hold the arms on the right and inhale and exhale 1 to 3 times.
- On an inhalation, bring the arms to centre above the head.
- Repeat on the other side.
- The person can modify this pose by keeping the hands on the hips. Remember not to strain or hold the breath. The person should feel a subtle stretch.
- Practice this step for 2minutes

BENEFITS OF NITAMBASANA

- ❖ Keeps the spine strong and flexible
- ❖ Reduces stress, anxiety, depression, and fatigue
- ❖ Calms the mind and soothes the nerves
- ❖ Relieves tension in the spine, neck, and back
- ❖ Activates the abdominal muscles
- ❖ Eases symptoms of menopause, asthma, headaches, and insomnia

- ❖ Stimulates the kidneys, liver, spleen
- ❖ Improves digestion

STEP-5 NITAMBASANA (Reclining Spinal Twist)

Yoga twists are thought to help improve digestion.

- ❖ Begin by lying down on the back with the legs extended away from the person.
- ❖ Bend the knees and bring the feet flat to the ground. Then, bring the knees toward the chest.
- ❖ Extend the arms out to the sides in a T position.
- ❖ Keep the jaw loose and the back of the neck long.
- ❖ Use the person core to drop the knees to the right on an exhalation. The person can squeeze a blanket or block between the thighs if the prefer.
- ❖ Take 3 to 5 breaths.
- ❖ Roll your legs back up to centre, and repeat on the other side
- ❖ Practice this step for 2minutes

BENEFITS OF SPINAL TWIST

- ➢ **Relief of back pain.**
- ➢ **Cleanse and detoxify the body.**
- ➢ **Stimulate digestion and circulation.**
- ➢ **Reduce stress and anxiety.**

STEP-6 PRANAYAMA

Methods

1. Sit in a meditative pose or in a comfortable position on the floor.
2. Keep the back straight and shoulders relaxed.
3. Close the right nostril with right hand thumb.
4. Inhale from the left nostril.
5. Close the left nostril with the right hand index and middle fingers.
6. Exhale from the right nostril. This completes one round of Chandrabhedan pranayama. The person can gradually do up to 20 rounds.
7. Practice this step for 8minutes.

Benefit

Cools the body and cures heartburn.

- ❖ Releases toxins from the body
- ❖ Reduces excess fat
- ❖ Enhances digestion
- ❖ Regulates the nervous system

STEP 7 SHAVASANA

After the exertions of the practice, Shavasana allows the body a chance to regroup and reset itself. After a balanced practice, the entire body will have been stretched, contracted, twisted and inverted. These means that even the deepest muscles will have the opportunity to let go and shed their regular habits, Practice this step for 10 minutes.

Furthermore, the physiological benefits of deep relaxation are numerous and include:

BENEFITS OF SHAVASANA

- A decrease in blood pressure.
- A decrease in muscle tension.
- A decrease in metabolic rate and the consumption of oxygen.
- A reduction in general anxiety.
- A reduction in the number and frequency of panic attacks.
- An increase in energy levels and in general productivity.
- An improvement in concentration and in memory.
- A decrease in heart rate and the rate of respiration
- An increase in focus.
- A decrease in fatigue, coupled with deeper and sounder sleep.
- Improved self-confidence.

Part - II

SECTION A: STUDIES RELATED TO INCIDENCE AND PREVALANCE OF HEMODIALYSIS

Port.F.K.et.al.,(2012) Conducted a study on incidence and prevalence of maintenance hemodialysis. In 1999 the Chinese Society of Nephrology reported national annual incidence data 15.3 per million population and point prevalence 33.16 per million populations. Multi stage cluster sampling method was used. The number of prevalent patient gradually increased to 8613 at the end of 2010, which corresponded to 509 per million population. Prevalence hemodialysis patients increased from 269 per million populations in the end of 2006 to 509 per million population by the end of 2010. In 2008, the annual incidence and point hemodialysis prevalence increased to 36.1 and 79.1, respectively.

Bethesda.M.D. et.al.,(2011) Conducted a study on incidence and prevalence of hemodialysis population. The number of incident hemodialysis cases rose 3.3 percent in 2009. Dual Medicare/Medicaid coverage has fallen to 113,636; with 2,759 patients receiving a pre-emptive transplant. More than 106,000 dialysis patients started Endstage renal disease (ESRD) treatment on hemodialysis, and 7,094 started on peritoneal dialysis. Dialysis symptom index was used to assess the dialysis illness. 6.1 percent of patients with a known dialysis modality. In 2009 prevalent population included 370,274 patients on hemodialysis and 27,522 on peritoneal dialysis.The incident hemodialysis population is considerably different from the peritoneal dialysis population however, these differences are markedly reduced. In the prevalent population, Medicare is the primary payor for 83% of hemodialysis patients, respectively.

Ferreira.C.T. et.al.,(2009) Conducted a study on prevalence of chronic hepatitis B virus (HBV) infection among hemodialysis patients. The increased incidence of dialysis in people older than 65 years. This cohort study analyzed data from 9,994 patients starting hemodialysis and peritoneal dialysis. prevalence of chronic HBV infection was estimated at 1.02% The dialysis incidence rates were 178, 174, and 188 per million population for the years, 2009, 2010 and 2011, respectively. The incidence rates increased with age.

Hemodialysis was the chosen dialysis modality in the majority of patients (92.6%), whereas the percentage of patients referred for peritoneal dialysis decreased from 10.1% to 5.5%. The annual growth in the number of hemodialysis patients was 6-12%.

Greenberg.R.S.,(2009) Conducted a study on the incidence and prevalence of hemodialysis due to hypertension in north america. Among 164 per million population enumerated. Among the age 30–39, the rate per million population (adjusted for gender) rose 78 percent to between 2000 and 2010. Between 2000 and 2010, rates rose 19.8 and 9.2 percent in whites and blacks/African Americans age 70 and older, to reach 554 and 1,597million population. The adjusted rate of prevalent cases of end-stage renal disease rose 1.7 percent%, slightly lower than the 1.9 % growth in 2009. The annual rate of increase has remained between 1.7 and 2.3 percent since 2008. In 2010, the overall rate for prevalent dialysis patients was 1,218 per million population. The percentage of prevalent hemodialysis population with ESRD caused by ranges from 40%.

Yacoub. R. et.al.,(2009) Conducted a study on prevalence and characteristics of the hemodialysis (HD) patients in Aleppo city. Surveyed the hospitals representing the main dialysis centers in the city including private and community facilities during 2006. This is a cross-sectional study under the auspices of Aleppo University. The total number of patients in 2006 undergoing HD was 550 patients,280 (50.9%) were males, and the age ranged from 35-82 years with mean and median age 44.7 and 45 years, respectively. The incidence (IR) and prevalence rate (PR) for hemodialysis were 60 population and 226 population respectively. There was an equal percentage of both genders in the hemodialysis population.

Ann Arbor. M.I. et.al.,(2012) Conducted a study on the prevalence of daily home hemodialysis population. In 2010, the number of new patients

starting therapy on hemodialysis declined for the first time in more than three decades. The prevalent population included 3,83,992 patients on hemodialysis and 29,733 on peritoneal dialysis, as well as 179,361 with a functioning kidney transplant. The employment of hemodialysis patients 18(12%) were employed, 49(32%) were unemployed.The total treated ESRD population thus rose to 593,086, from 2010, which is the smallest increase in 30 years. 84% of hemodialysis patients and 79% of those on peritoneal dialysis had some type of Medicare coverage, compared to just 65 percent of those with a transplant, reached 1,752 per million population. Prevalent rates for Asian patients on hemodialysis is 46% greater than that found in the overall population.

Ansaldi.F.et.al.,(2009) Conducted a study to assess the prevalence and epidemiology of hemodialysis patient, in Jordan. All patients on hemodialysis totally 1711patients were surveyed in this study. Each patient was personally interviewed in the hemodialysis unit. Using a structured questionnaire specifically designed for the purpose of this study. Mean age was 48.9 years, 56%were male, 86.8%were female, and 92%were poor, an average annual increace of 4.8%. An increase occurred largely among older age groups. Over 54% patients were maintained on 3 hemodialysis session per week. The prevalence was also higher among males 329 million population as compared to females 288 population. The incidence in 2002 was 111 million population. Over all prevalence of hemodialysis in Jordan was 312 per million population, respectively.

Perit Dial. et.al.,(2009) Conducted a study on the incidence of long-term dialysis patients. The effects of the various dialysis modalities on patient survival are different, especially for diabetic patients. Hemodialysis (HD) and peritoneal dialysis (PD) are the predominant renal replacement modalities. This study analyzes modality-related mortality in long-term dialysis patients. This prospective cohort study was conducted, for long-term dialysis patients. In

total, 1347 patients (258 on PD and 1089 on HD) were enrolled. In diabetic patients, adjusted all-cause [HD vs PD: hazard ratio (HR) 0.717, 95% confidence interval (CI) 0.400 - 1.282] and infection-related mortality (HD vs PD: HR 1.341, 95% CI 0.453 - 3.969) did not differ significantly between patients on HD and patients on PD. Roughly 39.2% of patients were ≥65 years of age at start of dialysis (42.7% on HD and 24.4% on PD) (p = 0.005).

Saran. R. et.al.,(2008) Conducted a study on prevalence of sex-specific differences in the characteristics, treatment, and outcomes of individuals with end-stage renal disease undergoing hemodialysis patient. Here describe hemodialysis prevalence and patient characteristics by sex, compare the adult male-to-female mortality rate with data from the general population. By age group, the highest proportion of women compared to men on hemodialysis was observed in the United States in the age group 65–74 years (49.2%), while the lowest proportion of women compared to men on hemodialysis was observed in Australia/New Zealand in the age group ≥75 years (31.9%). In all age groups, more men than women were on hemodialysis (59% versus 41% overall), However, given a hemodialysis mortality rate 10 to 20 times higher than in the general population.

Sabina.D.Geest.et.al.,(2007) Conducted a study on prevalence and consequences of nonadherence to hemodialysis regimens. Non adherence to the prescribed regimen is a common problem in hemodialysis and is associated with increased morbidity and mortality. Currently, the prevalence is 479 to 1500 cases per million inhabitants and the incidence is 75 to 308 cases per million inhabitants, can be treated by renal replacement therapies, such as hemodialysis , transplantation, and peritoneal dialysis. Hemodialysis is the therapy used most often. Among patients with end-stage renal disease, 66% in the United States and 46% to 98% in Europe receive hemodialysis. Only 32% to 33% of patients on hemodialysis survive to the fifth year of treatment, whereas 70% of patients have kidney transplants are alive after 5 years.

SECTION B: STUDIES RELATED TO EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HAEMODIALYSIS

Gold berg.A.P.,(2009) Conducted a study on fatigue and insomnia among hemodialysis patients in the outpatient hemodialysis unit of the nephrology department, Uludag university faculty of medicine, New delhi.India. Randomized controlled trial studied a 6week. 37 patients were selected as samples. n=37 were included and following in two groups. The hatha yoga exercise group (n=19) and the control group (n=18). Hatha yoga based exercise were done in groups for 30 minutes per day, twice a week for 3 months. Fatigue severity scale and visual analog scale were used to assess fatigue and sleep disturbance. The hatha yoga postures such as pranayama, nitambasana, ardha chakrasana. The pre test mean and standard deviation (7.4 $\pm$ 2.5) and post test (7.2$\pm$ 5.3), insomnia mean and standard deviation (4.6$\pm$ 3.6) and post test (4.4$\pm$3.7). Percentage changes in the variables from base lines values reduced were 55% in fatigue and 25% in insomnia in the intervention group. The statistical changes indicated for subjective and objective variables fatigue (p=0.008), insomnia (p=0.04) were not statistically significant.

Andreas Michalsen.et.al.,(2012) Conducted a study to examine the effects of hathayoga on hemodialysis patients. The researchers aimed at systematically reviewing and meta-analyzing the effectiveness of yoga interventions for fatigue. Yoga had a small positive effect on fatigue (SMD = 0.27, 59% CI = 0.23–0.31). The methodological quality of the studies was assessed. Investigated yoga styles included Hatha, Iyengar, Asanas, and Tibetan yoga. Participants were suffering from cancer, multiple sclerosis, chronic renal failure and asthma. Although yoga is generally a safe therapeutic intervention and effective to attenuate other health-related symptoms, in over

all studies reported positive effects in favor of the yoga interventions. The overall treatment effect at SMD = 0.27 [0.23; 0.31] ranging from (−0 . 4 3 ± 0 . 2 6) to (1 . 6 2 ± 0 . 24). The effect of the yoga intervention on fatigue (SMD = 0.24 [0.18; 0.29]) than those with high quality (SMD = 0.46 [0.37; 0.55]) respectively.

Parsons. T.L.et.al.,(2006) Conducted a study to evaluate the effects of a yoga-based exercise program on pain, fatigue, sleep disturbance, and biochemical markers, in hemodialysis patients, conducted a single-blind, randomized trial study consisted of 33 ESRD disease on hemodialysis patient. Comparing the effects of yoga with gentle range-of-motion exercises on symptoms related to hemodialysis in 37 renal failure patients. The age of the patients in the Hatha yoga exercise group was 38.95 ± 2.84 years, while that of the control group was 44.59 ± 2.57 years. The body mass index (BMI) of the patients in the control group was 25.74 ± 0.50, while that of the Hatha yoga exercise group was 25.550 ± 2.21. The patients in the control group were on hemodialysis for 4.45%. In patients in the pre test hemodialysis Hatha yoga exercise group, there was a significant reduction in the activity of (12.7% reduction; P = 0.010).In post test after hatha yoga intervention there was a significant increase in the activities of (4.65% elevation; P=0.0001) respectively.

Gordon. L.A. et.al., (2009) Conducted a study to evaluate the effects of the yoga-based exercise on hemodialysis patients, Yurtkuran and coworkers studied 37 stable hemodialysis patients. patients undergoing dialysis, it was demonstrated that 30 minutes of daily hatha yoga exercise significantly reduced Pain intensity, fatigue, sleep disturbance,and grip strength (mmHg) as well as biochemical variables, were measured. Hatha yoga is used to reduce post-dialysis symptoms and complications. Totally, hatha yoga (the physical training part) is a combination of postural exercise (asana), voluntary control of breathing (pranayama), and relaxation and meditation (shavasana) After

3 months of intervention, significant improvements were noted in most of the variables like pain (37% decrease), fatigue(55% decrease), sleep disturbance (25%decrease), grip strength (15% increase).

Yogendra. J.et.al.,(2005) Conducted a study of the hatha yoga exercises on dialysis adequacy among hemodialysis patients. The present two-grouped semi-experimental, controlled trial was conducted on 31 hemodialysis patients, from Shahid Labba finejad hospital. The effect of yoga based exercise has been evaluated pain, fatigue, sleep disorders and biochemical markers in hemodialysis patients, and the results revealed that 37% reduction in pain, 55% reduction in fatigue, 25% reduction in sleep disturbances. Data were analyzed by SPSS16 statistical software using paired t-test and chi-square method. Reduction in fatigue manifestations (18.6%, P= 0.02), was found.

Shahid. G.M.,(2009) Conducted a study to evaluate the effects of the yoga in hemodialysis patients to assess the chronic insomnia in tertiary care hospital by college of nursing, All india medical sciences, New Delhi, India. This study is before and after intervention quasi experimental study. Using purposive sample method 42 patients were selected. Data collected by insomnia severity index and two way sleep diary that were completed before and after relaxation. Data were analysed with t-test, pearson and spearman tests. The mean score of samples insomnia severity after relaxation (6.34$\pm$ 5.04) were significantly (p=0.001) lower than before (15.54$\pm$ 6.16). Significant deferences before and after relaxation (p=0.001) respectively.

Hudson. S.,(2006) Conducted a study to evaluate the effects of yoga based exercise program on pain, fatigue, sleep disturbance, and biochemical makers in hemodialysis patients. A randomized controlled trial was carried out in the outpatient hemodialysis unit of the nephrology department. The main outcome measures were fatigue and sleep disturbance, measured by visual analogue scale (VAS).After a 12week intervention, significant improvements

were seen in the variables, pain 37%,fatigue 55%,sleep disturbance 25%,no side effects were seen. The median duration of hemodialysis was 10.5months(mean 21.9±14.2months,fof the 40 subjects. comparison of the groups on the basis of percentage changes indicated statistical significance for subjective and objective variables in fatigue (p=0.008), sleep disturbance (p=0.04).

Uchiyama.M.,(2006) Conducted a study on sleep disorders in maintenance haemodialysis (HD) patients. To investigate whether the new technical and therapeutic advances of the hatha yoga last decade have had a positive impact on sleep disturbances in HD patients: 694 patients (384 males, 310 females), were surveyed using a specific questionnaire, their clinical lifestyle and dialysis data were also recorded. 45% of patients (*n*=311; 156 males, 155 females) complained of insomnia, and the average time on dialysis was 60.1±53.8 months. After the intervention 86% of the patients had reduced some sleep disturbance. The most frequently recorded sleep disorders were night-time waking (92%), trouble falling asleep (67%) and early morning waking (62%). Restless leg symptoms were described in 52% of patients with insomnia. *P* value <0.05 was considered statistically significant.

Santhana.L.,(2011) Conducted a study on aimed to determine the effectiveness of yoga exercise programme for reducing fatigue and improving sleep disorders among long-term haemodialysis patients. In this quasi-experimental study, an exercise programme was conducted three times a week for 12 weeks before long-term haemodialysis patients underwent dialysis at two centres. Fatigue levels experienced in the seven days preceding the exercise programme were measured using the Malay version of the self-reported FACIT-fatigue scale was used to assess the hemodialysis patients. Sleep disorders were assessed using the Malay version of the Pittsburgh Sleep Quality Index (PSQI).The patients were categorised into either the exercise group (n = 28) and control group (n = 27). Assessments of fatigue and sleep

disorder levels were performed for both groups using self-reported questionnaires. Paired sample t-test indicated improvements in fatigue level in the exercise group (mean fatigue score: posttreatment40.5 ± 7.9 vs. pre-treatment 30.0 ± 10.9). Improvements in sleep disorders were also observed in the exercisegroup (mean score: post-treatment 7.6 ± 3.3 vs. pre-treatment 10.1 ± 3.8). However, sleep quality deteriorated in the control group (mean score: post-treatment 10.7 ± 2.9 vs. pre-treatment 9.3 ± 2.9) ($p > 0.05$), respectively.

SECTION C: STUDIES RELATED TO NURSES ROLE IN HATHAYOGA AMONG PATIENTS WITH HAEMODIALYSIS

Christina. A.,(2011) Conducted a study on Physical functioning in patients with end-stage renal disease treated with dialysis. Block experimental design was used. 48% patients were randomly selected and physical activity was evaluated for a mean period of 3 weeks. Regular assessment of physical functioning and encouragement of increased physical activity are still given minimal attention within the nephrology community. Rehabilitation interventions are most frequently discussed in relation to dialysis patient. Approximately 3.2million people die each year due to lack of physical activity. Hemodialysis patients reported low levels of physical activity which was determined using questionnaire. In reported that implementation of yoga exercise, especially Hatha yoga as a combination of breathing, positional, and relaxing exercises, along with music as well as Quranic and religious recitation left significant impact on these patients. Health care workers such as physicians, technician, renal dietician, nurses should play a major role in educating the patients on importance of physical activity. Significant improvement was shown in mean average from 39.0 points to 44.2 points.

Jain. S.N.et.al.,(2011) Conducted a study on the, physical benefits of yoga practice on individual. Many hemodialysis patients practice various forms

of yoga and some use it in their practices, used a quasi experimental design and recruited 63 female community residents in New Taipei City aged 40-60 years. Participants were randomly divided into an experimental group (n = 30) and a control group (n = 33). The experimental group received the 8-week Hatha yoga course. The control group received no intervention. Chi-square, independent t test, paired t test, and generalized estimating equations were used for data analysis. The findings support the position that regular, long-term practice of Hatha yoga provides clear and significant health benefits (p = .005), respectively.

Nirajan haber.D.M.et.al.,(2008) Conducted a study on the assessment of sleep disorders in hemodialysis, 43% patients suffer from insomnia. Some of the therapies to promote and develop individuals' general health include laughter, humor therapy, and laughter and Yoga. These methods include stress management, physical exercises, relaxation and psychological counseling, education of social skills. This is a quasi-experimental two-group three-step study conducted on 38 dialysis patients of Isfahan University of Medical Sciences institute. In the study group, the first sessions of laughter Yoga were held (two sessions a week), and in the control group, no intervention was conducted (37.6% 942.5%); P<.001). The data of the present study were collected by Goldberg and Hiller's General Health Questionnaire and analyzed by SPSS version 12, this questionnaire was used. In one month after intervention there was no significant difference between these scores (*P* = 0.55), respectively.

CHAPTER - III
METHODOLOGY

This chapter includes research approach, research design, research setting, population, sample size, criteria for selection of sample, description of the tool, scoring procedure, validity, reliability, pilot study, and method of data collection and plan for data analysis and protecting the human subjects.

RESEARCH APPROACH

An evaluative approach was used for this study.

RESEARCH DESIGN

The research design was one group pre test and post test design which was adopted to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis.

Schematic representation

GROUP	PRETEST	INTERVENTION	POST TEST
Experimental group	O_1	X	O_2

O_1 - Collection of demographic data, pretest to assess the level of fatigue and insomnia among patients with hemodialysis.

X - Hatha Yoga was given for 30 minutes once in a day for a period of 15 days.

O_2 - Post test to assess the level of fatigue and insomnia among patients with hemodialysis.

RESEARCH SETTING

The study was conducted in Nallasamy hospital at Erode. Nallasamy hospital, it is 75 bedded hospital with various departments like general

medicine, surgery, gynaecology, orthopaedics, psychiatrics, and departments of urology. Numbers of out patients treated in this hospital were 200 per day, and number of in patient treated were 70. In nephrology ward each day 30 patients were regularly getting hemodialysis. Every day 30-40 patients of renal failure were treated in inpatient department, and staying in 15 to 20days. Overall 55 patients are getting hemodialysis every day. Hemodialysis unit allorted in 4 shifts. In each shifts 13 to15 patients are getting hemodialysis treatment. 165 patients are getting hemodialysis per month.

POPULATION

The target population selected for this study was patients who were under the treatment of haemodialysis.

SAMPLE

Patient with haemodialysis who were admitted in Nallasamy hospital.

CRITERIA FOR SELECTION OF SAMPLE

INCLUSION CRITERIA

- Patients with age group of 45 to 60 years
- Both male and female patients
- Patients who were admitted in the inpatient department for a minimum stay of 16 days.
- Patients who have permanent vascular access to use the hemodialysis.
- Patients, who are undergoing hemodialysis below 1year to above 5years.

EXCLUSION CRITERIA

- patients who are critically ill
- Patients who were physically challenged.
- Patients who are not willing to participate in this study.

- Patients who have temporary vascular access like internal jugular vein or femoral vein.

SAMPLE SIZE AND SAMPLING PROCEDURE

SAMPLE SIZE

The sample size for the study consists of 60.

SAMPLING TECHNIQUE

Non probability purposive sampling technique was used to select the samples for the study.

INSTRUMENT AND SCORING PROCEDURE

INSTRUMENT

The tool consists of three parts.

PART-I

It consists of demographic variables such as the age, sex, marital status, educational status, occupation, religion, family monthly income, type of family, area of residence, duration of illness, duration of treatment, cycle of haemodialysis.

PART-2

Fatigue severity scale was used to assess the level of fatigue among patients with haemodialysis.The items are scored on a 7point likert scale scored as 1,2,3,4,5,6and 7.Total 9 questions.Total score is 63.The fatigue severity score is interpreted as1- absence of fatigue,2-4 moderate fatigue and above 4- severe fatigue.

PART-3

Insomnia severity index was used to assess the level of insomnia among patients with hemodialysis. It has 7 questions. It's rated as 0-7 no insomnia,

8-14 mild insomnia,15-21moderate severe insomnia and, 22-28 severe insomnia. It is scored as 0,1,2,3,4. The total score is 28.

SCORING PROCEDURE

Part II

The fatigue severity scale was used to assess the level of fatigue among patients with hemodialysis.

Level of Fatigue	Score	Percentage (%)
Absence of fatigue	1-9	1-14%
Moderate fatigue	10-36	15-57%
Severe fatigue	37-63	58-100%

Part III

Insomnia severity index was used to assess the level of insomnia severity among patients with hemodialysis.

Level of insomnia	score	Percentage
No insomnia	0-7	0-25%
Mild insomnia	8-14	26-50%
Moderate severe insomnia	15-21	51-75%
Severe insomnia	22-28	76-100%

VALIDITY AND RELIABILITY OF THE TOOL

Validity

The validity of the tool was established in consultation with 4 nursing experts and one Nephrologist. Standardized tool was used to assess the level of fatigue and insomnia.

Reliability:

The Reliability of the fatigue severity scale stability was established, by test re test method, Karl pearson co efficient formula was used and found to be reliable (r=0.83).Reliability of fatigue severity scale, internal consistency was

established by testing the split half method, spearmans brown prophency formula was used and found to be reliable (r=0.93). The Reliability of the insomnia severity index stability was established, by test re test method, Karl pearson co efficient formula was used and found to be reliable (r=0.98). Reliability of the insomnia severity index, internal consistency was established by testing the split half method, spearmans brown prophency formula was used and found to be reliable (r=0.94).It found that the tool was reliable.

PILOT STUDY

The pilot study was conducted in Kalyani Kidney care centre, Erode. The researcher selected in inpatient department. The researcher obtained written permission from the institution and oral permission from the participants, prior to the study and the purpose of the study was explained to the subjects. The pilot study was conducted for a period of 15 days.Based on the the inclusion criteria 10 samples were selected by using purposive sampling technique. On the first day, data pertaining to the demographic variables were collected then pre test questionnaire such as fatigue severity scale and insomnia severity index were administered. The same day Hatha yoga such as pranayama, Ardha chakrasana(standing back ward bend, standing forward bend) Nitambasana (mountain pose and side stretch and reclining spinal twist)and Shavasana, was given to the participants, individually for 15 days, one hour after hemodialysis, by using demonstration method. Each session lasts for 30 minutes once a day. On 16^{th} day post test was conducted by using the same tool.

Data was analysed and the findings of the pilot study showed that, the mean post test of fatigue severity scores 25.3(SD $\pm$ 3.62) was significantly lower than the mean pre test scores 43.5 (SD $\pm$ 6.33), the paired 't' value for fatigue severity was 9.70 which was significant at $p<0.05$ levels. The mean post test of insomnia severity index scores 7.6 (SD $\pm$ 2.34) was significantly lower than the mean pre test scores 19.3 (SD $\pm$ 6.52). The paired 't' value for

insomnia severity index was 7.33 which was significant at $p<0.05$ levels. The pilot study revealed that the study is feasible and practicable to conduct the main study.

DATA COLLECTION PROCEDURE:

The main study was conducted in Nallaswamy hospital from Erode. Data collection was done for a period of 6 weeks. The investigator obtained written permission from the hospital. The oral permission was obtained from each participant prior to the study.The purpose of the study was explained to the subjects. Based on the inclusion criteria 60 samples were selected by using purposive sampling technique. Researcher took the samples from first 3 shifts of the patients with hemodialysis. On the first day 20 samples were collected. On 1st day, the demographic variables was collected by interview then the pre test was conducted to the participants by using fatigue severity scale to assess the level of fatigue, and insomnia severity index to assess the level of insomnia, and Hatha yoga such as pranayama, Ardha chakrasana(standing back ward bend, standing forward bend) Nitambasana (mountain pose and side stretch and reclining spinal twist) and Shavasana, was given to the participants individually for 15 days one hour after hemodialysis, by using the demonstration method. Each session lasts for about 30 minutes per day, and each day observe the patients upto 15 days. On the 16th day post test was conducted by using the same tool. The same procedure has been followed for the remaining 40 samples of patients with hemodialysis. The data were collected, and analyzed and tabulated.

PLAN FOR DATA ANALYSIS

Descriptive and inferential statistics were used for data analysis.

S. No	Data Analysis	Method	Purpose

1.	Descriptive statistics	Frequency and percentage. Mean, Standard deviation	To describe the demographic variables of patients with haemodialysis. To assess the pre test and post test level of fatigue and insomnia among patients with haemodialysis.

S. No	Data Analysis	Method	Purpose
2.	Inferential statistics		Compare the pre test and post test level of fatigue and insomnia among patients with haemodialysis.
		Paired 't' test 'Chi square' test	To find the association between the post test level of fatigue and insomnia among patients with haemodialysis and their selected demographic variables.

PROTECTING THE HUMAN SUBJECTS

The research proposal was approved by the dissertion committee prior to the conduct of the main study. The written permission was obtained from the medical superintendents of Nallaswamy hospital at Erode. Oral consent was obtained from each sample before starting the data collection and their data were kept confidential.

CHAPTER - IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the data collected to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected Hospital at Erode.

ORGANIZATION OF DATA

The data has been tabulated and organized as follows,

SECTION A : Distribution of demographic variables of patients with hemodialysis.

SECTION B: Assess the pre test and post test level of fatigue among patients with hemodialysis..

SECTION C: Assess the pre test and post test level of insomnia among patients with hemodialysis.

SECTION D: Comparison between the pre test and post test level of fatigue among patients among hemodialysis.

SECTION E: Comparison between the pre test and post test level of insomnia among patients among hemodialysis.

SECTION F: Association between the mean post test level of fatigue among patients with hemodialysis and their selected demographic variables.

SECTION G: Association between the mean post test level of insomnia among patients with hemodialysis and their selected demographic variables

SECTION A: DISTRIBUTION OF DEMOGRAPHIC VARIABLES OF PATIENTS WITH HEMODIALYSIS

TABLE 1: Frequency and percentage distribution of demographic variables among patients with hemodialysis.

n = 60

S. No	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP	
		f	%
1.	**Age in years**		
	a) 45 - 50years	26	43.3
	b) 51 – 55 years	18	30.0
	c) 56– 60 years	16	26.7
2.	**Sex**		
	a) Male	45	75
	b) Female	15	25
3.	**Marital Status**		
	a) Married	51	85
	b) Unmarried	3	5
	c) Divorced	-	-
	d) Single	6	10
4.	**Education**		
	a) No formal education	37	61.7
	b) Primary education	19	31.7
	c) Secondary education	1	1.6
	d) Higher Secondary education	-	-
	e) Graduate	3	5

S. No	DEMOGRAPHIC VARIABLES	EXPERIMENTAL GROUP

		f	%
5.	**Occupation**		
	a) Self employee	31	51.7
	b) Private employee	15	25
	c) Government employee	2	3.30
	d) Unemployed	12	20
6.	**Religion**		
	a) Hindu	42	70
	b) Christian	14	23.3
	c) Muslim	4	6.7
	d) Others	-	-
7.	**Family monthly Income**		
	a) Rs.5000 to Rs.10,000	20	33.3
	b) Rs.10,000 to Rs.15,000	16	26.7
	c) Rs.15,000 to Rs.20,000	22	36.7
	d) Above 20,000	2	3.3
8.	**Type of family**		
	a) Nuclear family	49	81.7
	b) Joint family	11	18.3
9.	**Area of Residence**		
	a) Rural	41	68.3
	b) Urban	19	31.7
10.	**Duration of illness**		
	a) 1 year	25	41.6
	b) 1 to 3years	18	30
	c) 3 to 5 years	4	6.7
	d) Above 5years	13	21.7

S. No	**DEMOGRAPHIC VARIABLES**	**EXPERIMENTAL GROUP**	
		f	**%**

11.	**Duration of treatment**		
	a) Below 1year	25	41.6
	b) 1to 3 years	18	30
	c) 3to 5 years	4	6.7
	d) Above 5 years	13	21.7
12.	**Cycle of Hemodialysis per month**		
	a) 1 to 3 cycles	-	-
	b) 3 to 5 cycles	1	1.7
	c) 5 to 10 cycles	56	93.3
	d) Above 10 cycles	3	5

Table 1 showed that the distribution of demographic variables among patients with hemodialysis according to their demographic variables such as age, sex, marital status, educational status, occupation, religion, family monthly income, type of family, area of residence, duration of illness, duration of treatment , cycle of hemodialysis per month.

Regarding age majority of patients 26 (43.3%) belonged to the age group of 45-50 years, 18(30.0%) belonged to the age group of 51-55 years, and 16(26.7%) belonged to the age group of 56 – 60 years. **Fig(2).**

Regarding sex, majority of patients 45(75%) were males and 15(25%) were females. **Fig(3).**

Regarding marital status, majority of patients 51(85%) were married. 3 (5%)were unmarried and 6(10%) were single. **Fig(4).**

With regard to educational status, majority of the patients 37(61.7%) had no formal education, 19(31.7%) had primary education. 3(5%) were graduates, and 1(1.6%) had secondary education. **Fig(5).**

Regarding occupation, majority of patients 31(51.7%) were self employee, 15(25%) were private employee, 12(20%) were unemployed, and 2(3.30%) were government employee. **Fig(6).**

Regarding religion, majority of patients 42(70%) belonged to Hindu religion, 14(23.3%) belonged to Christian religion. 4(6.7%) belonged to Muslim religion. **Fig(7).**

With regard to family monthly income, majority of patients 22(36.7%) were in between Rs 15,000-Rs.20,000, 20(33.3%) were in between Rs 5000-Rs.10,000, 16 (26.7%) were in between Rs 10,000-Rs.15,000 and 2 (3.30%) were above Rs.20,000. **Fig(8).**

With regard to type of family majority 49 (81.7%) were belongs to nuclear family,and 11(18.3) were belongs to joint family. **Fig(9).**

With regard to area of residence, belonged to majority 41(68.3%) were in rural area and 19(31.7%) were in urban area. **Fig(10).**

Regarding duration of illness, majority of patients 25(41.6%) had duration of illness for 1year.18(30%) had duration of illness for1to3years.13(21.7%) had duration of illness for above 5years, and 4(6.7%) had duration of illness for 3 to 5years. **Fig(11).**

Regarding duration of getting hemodialysis treatment, majority of patients 25(41.6%) had duration of treatment for a period of below 1year,18(30%) had duration of treatment for a period of1-3years, 13(21.7%) had a duration of treatment for a period of above 5years, and 4(6.7%) had a duration of treatment for a period of 3-5years. **Fig(12).**

Regarding cycles of hemodialysis per month, majority of patients56(93.3%) were had 5-10 cycles per month, 3(5%) were had above 10 cycles per month, and 1(1.7%) were had 3-5 cycles per month. **Fig(13).**

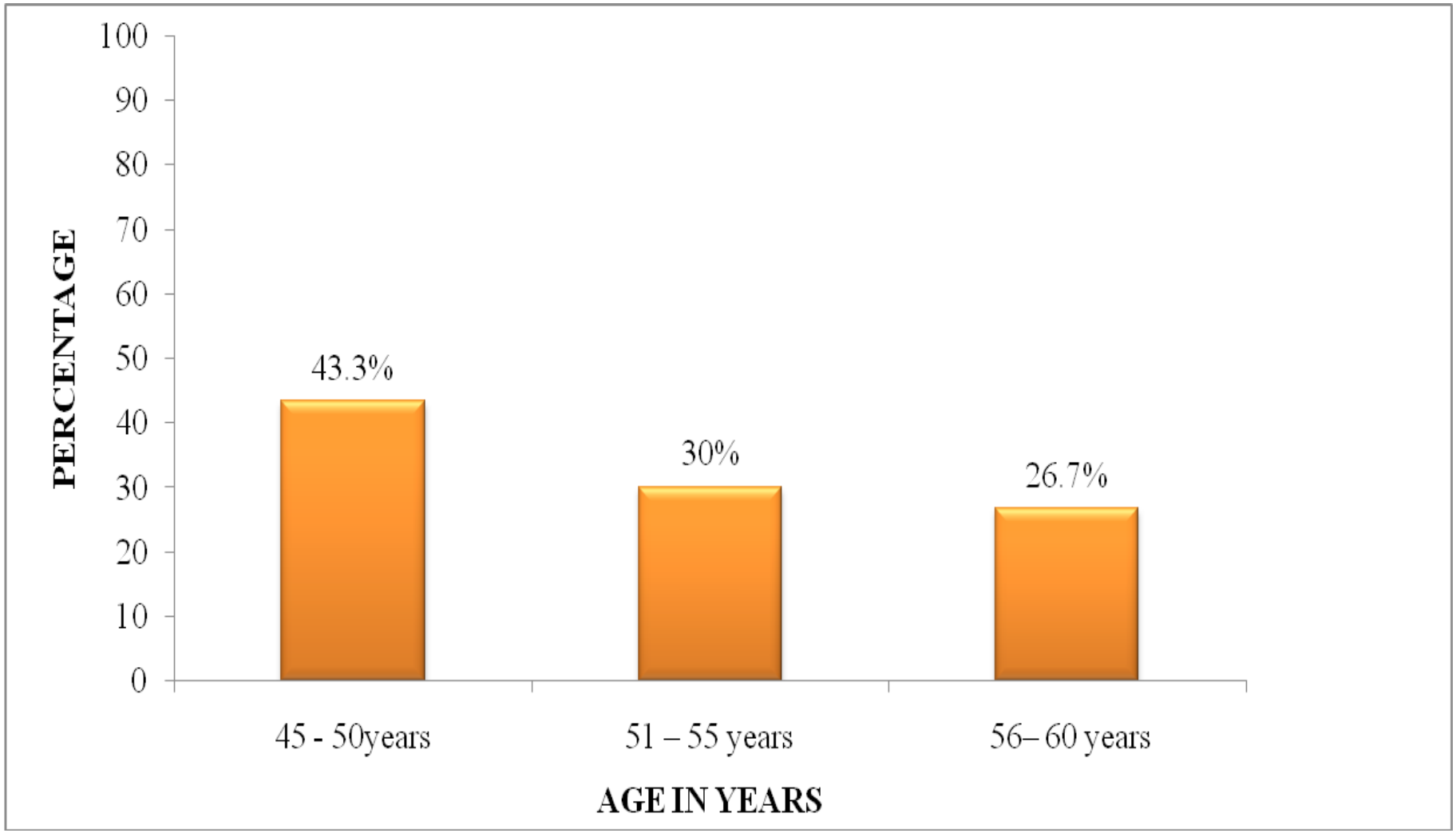
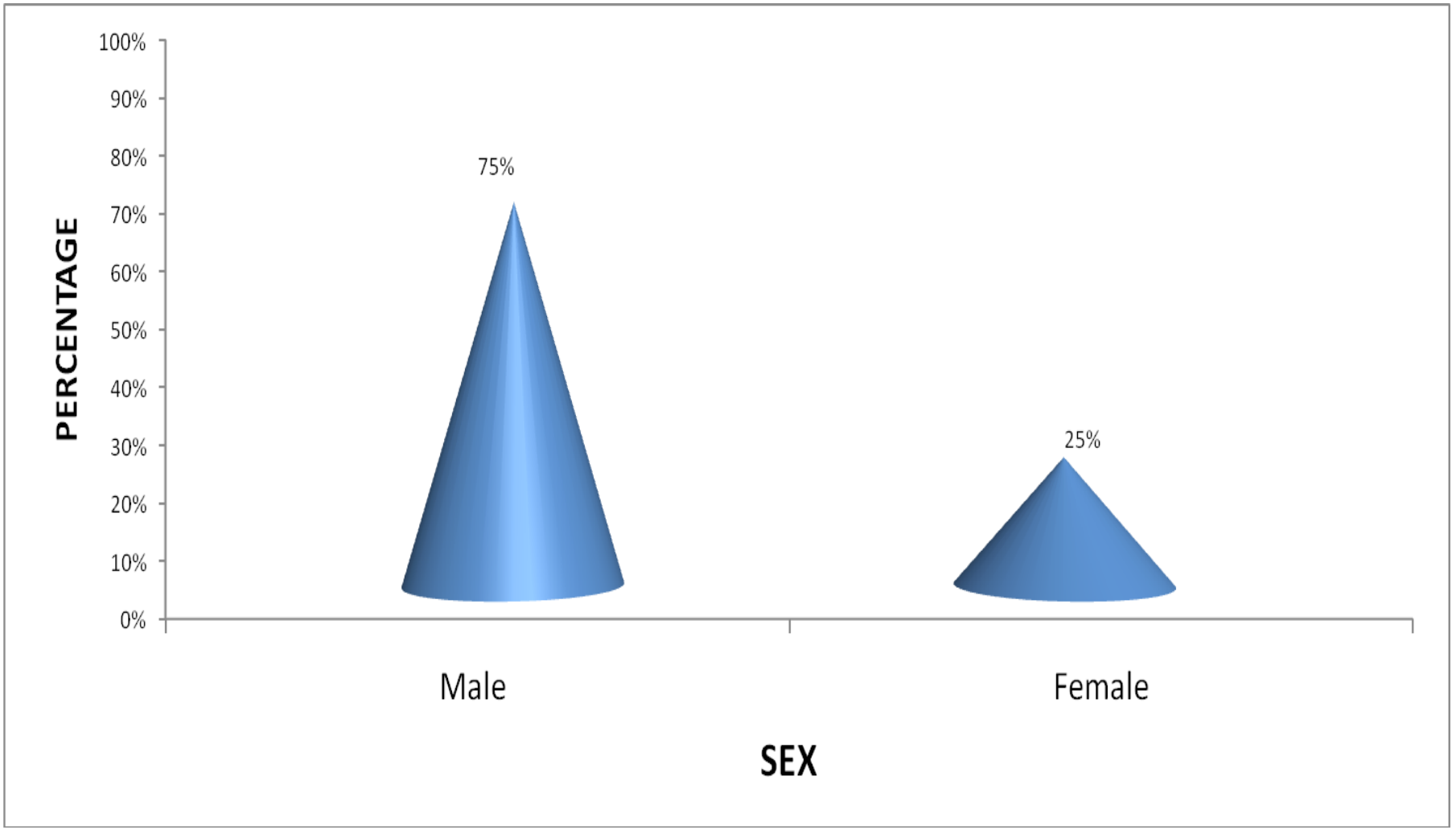


Figure 2: Percentage distribution of patients with hemodialysis according to their age in years


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
PERCENTAGE
75%
25%
Male
Female
SEX

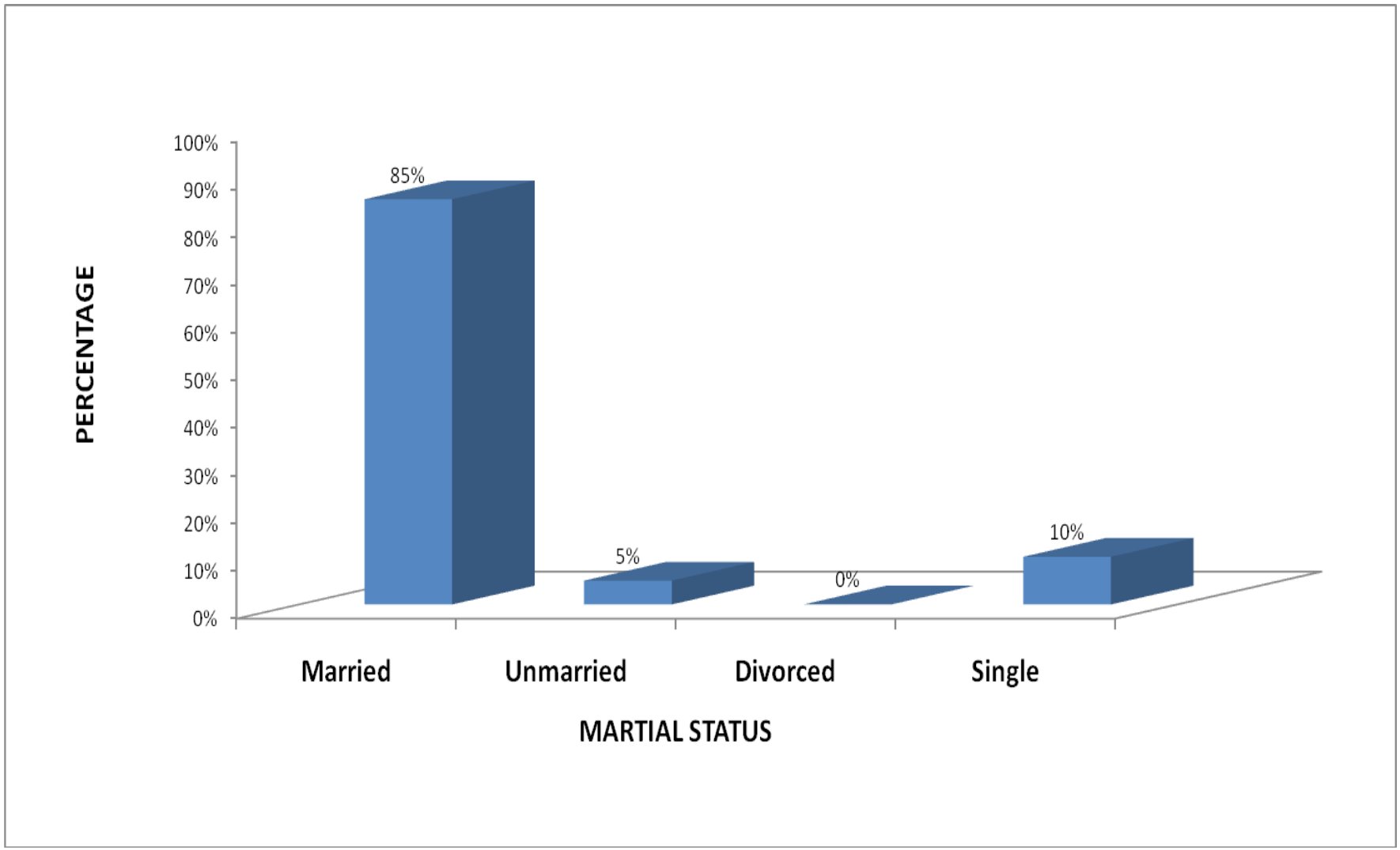


Figure 4: Percentage distribution of patients with hemodialysis according to their marital status

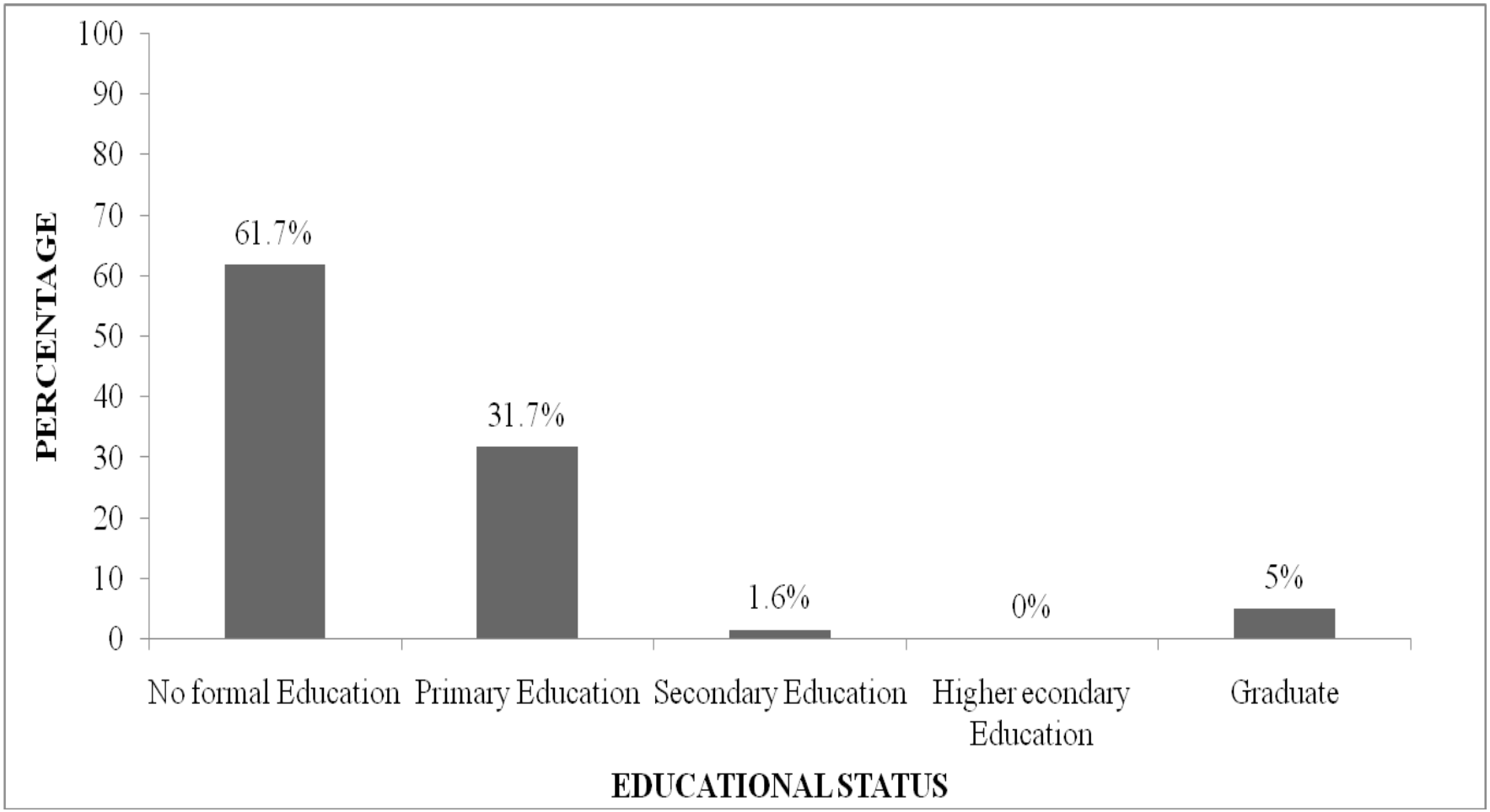
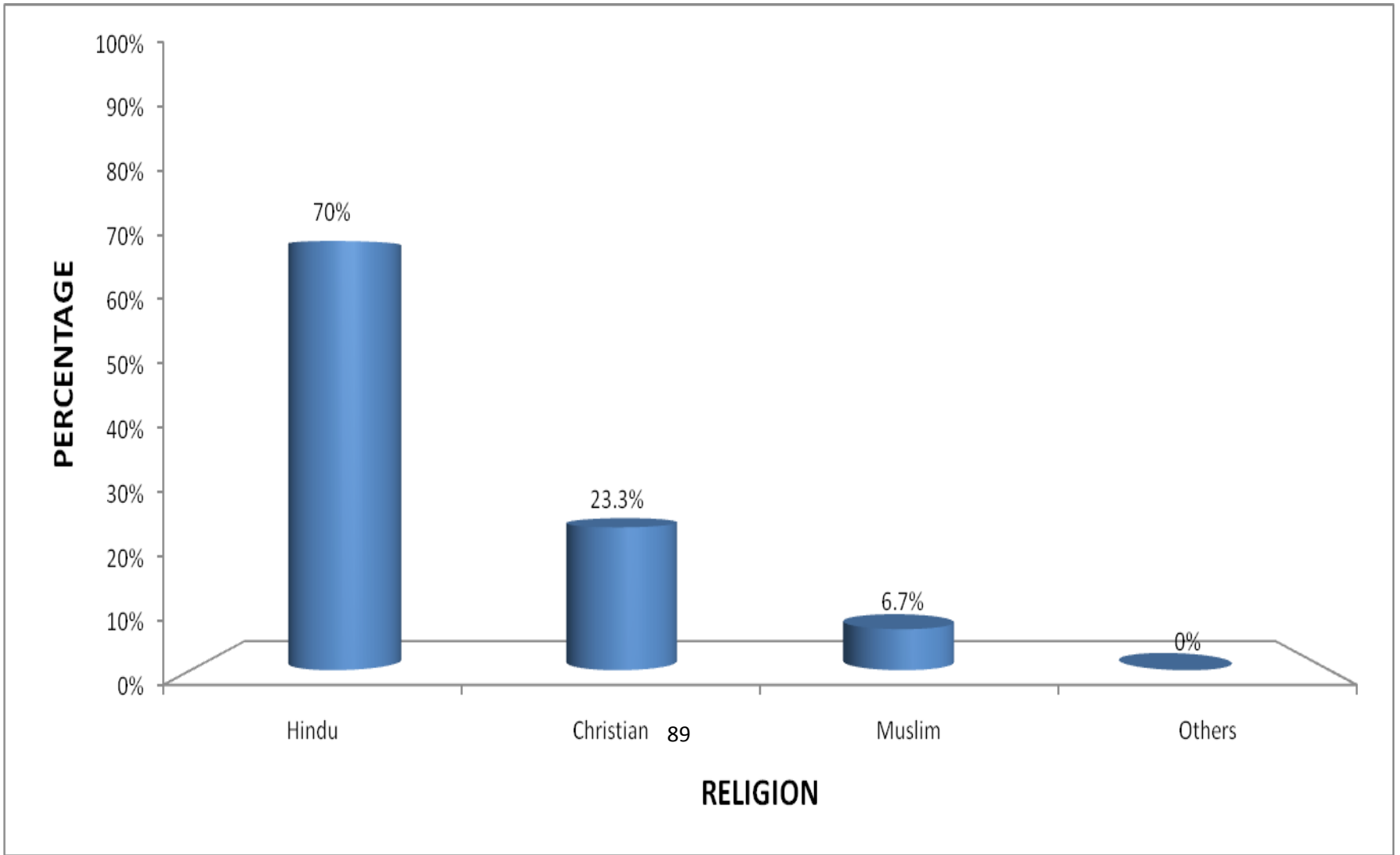


Figure 5: Percentage distribution of patients with hemodialysis according to their education

OCCUPATION

Figure 6 : Percentage distribution of patients with hemodialysis according to their occupation



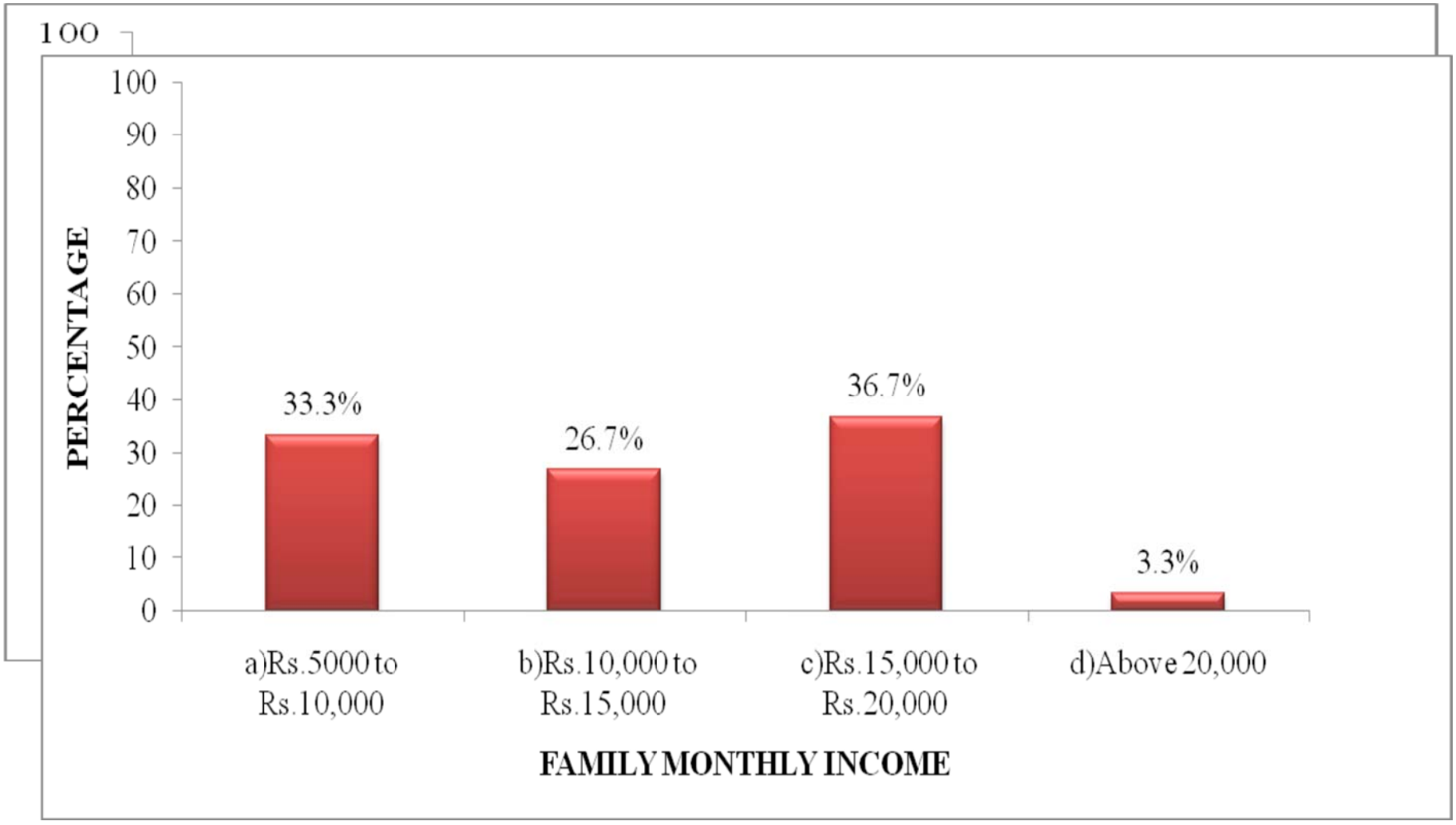

100
90
80
70
60
50
40
30
20
10
0
PERCENTAGE
33.3%
26.7%
36.7%
3.3%
a)Rs.5000 to Rs.10,000
b)Rs.10,000 to Rs.15,000
c)Rs.15,000 to Rs.20,000
d)Above 20,000
FAMILY MONTHLY INCOME

Figure 8: Percentage distribution of patients with hemodialysis according to their family monthly income

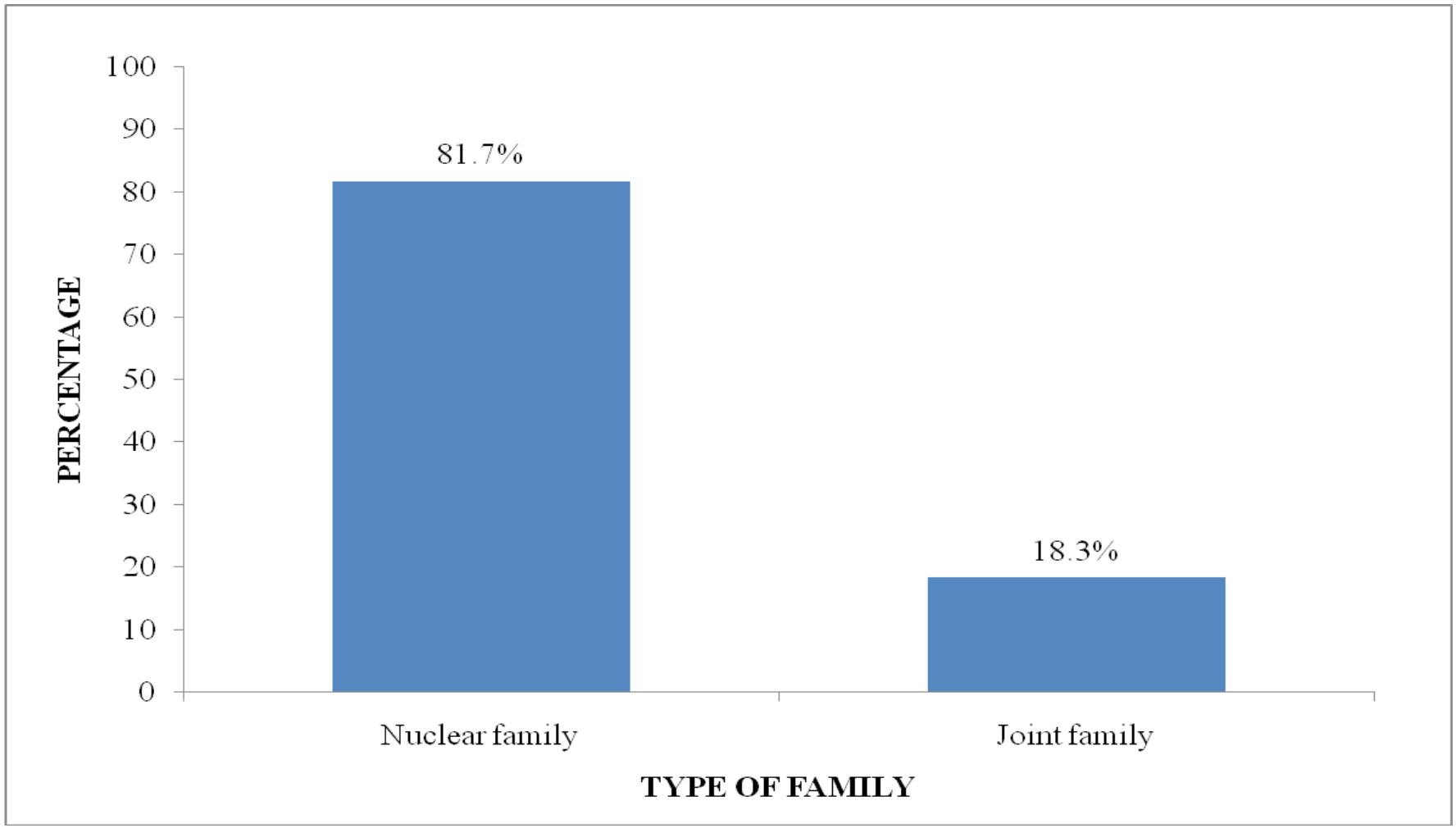
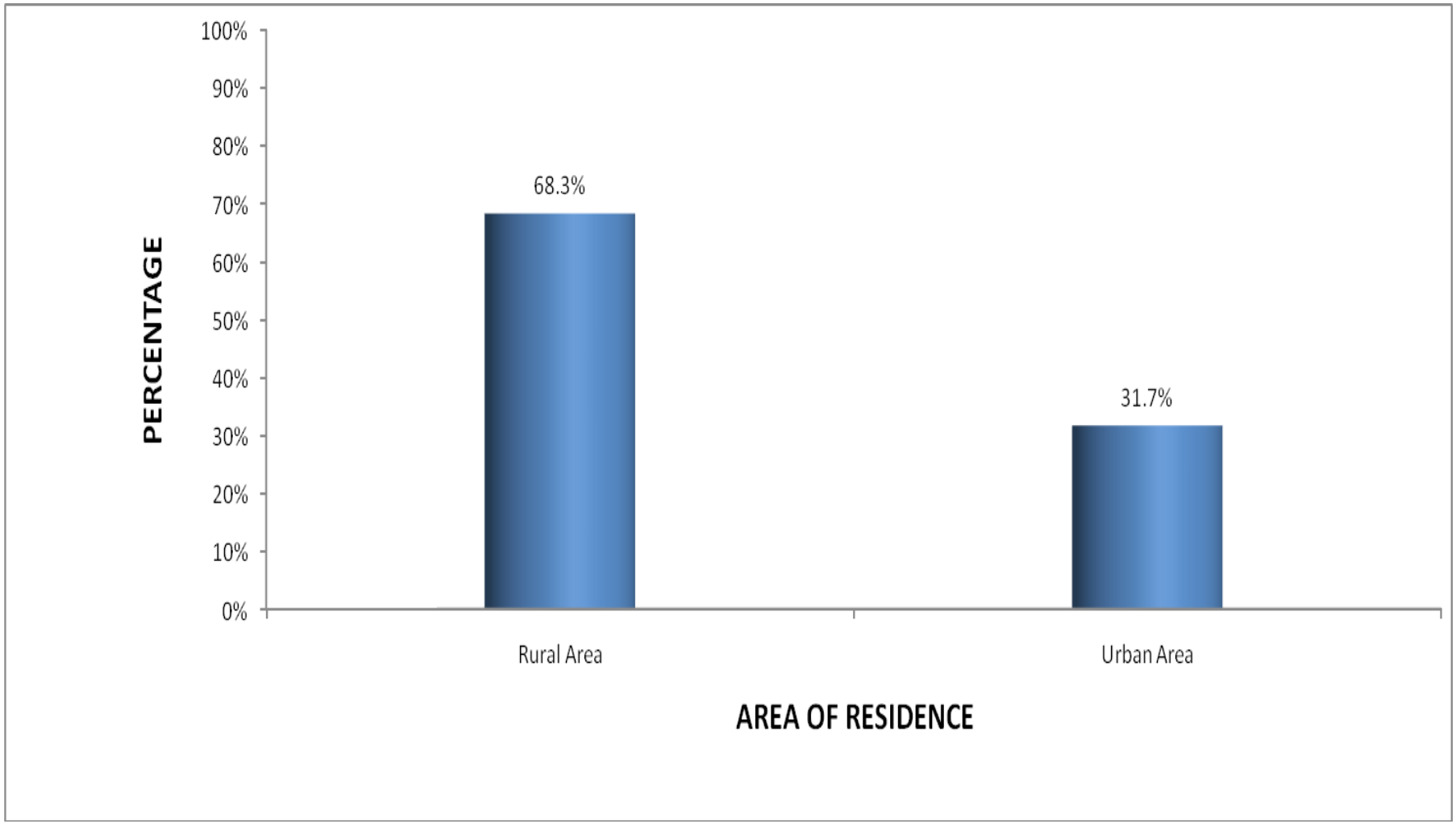


Figure 9: Percentage distribution of patients with hemodialysis according to their type of family



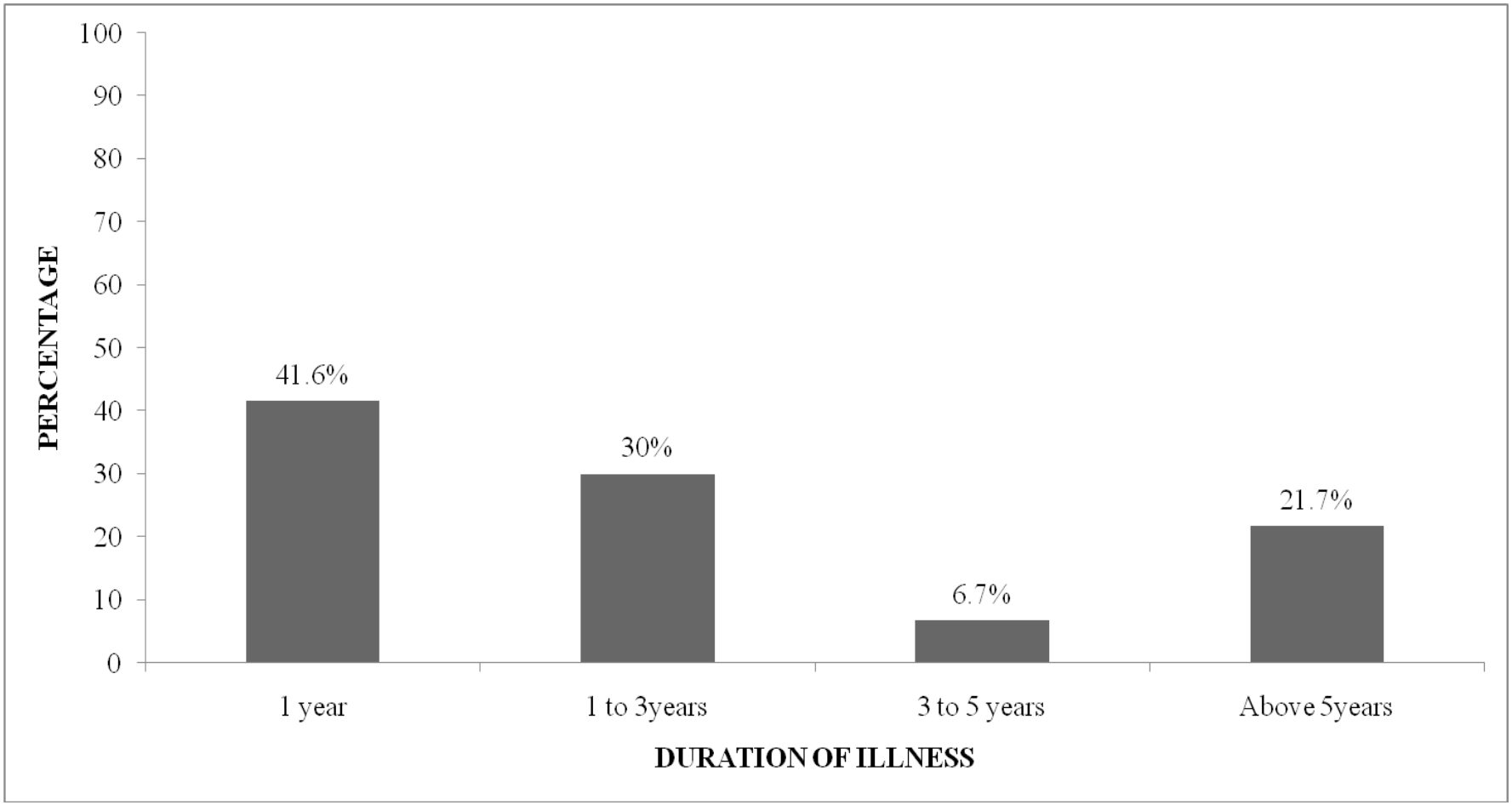


Figure11: Percentage distribution of patients with hemodialysis according to their duration of illness

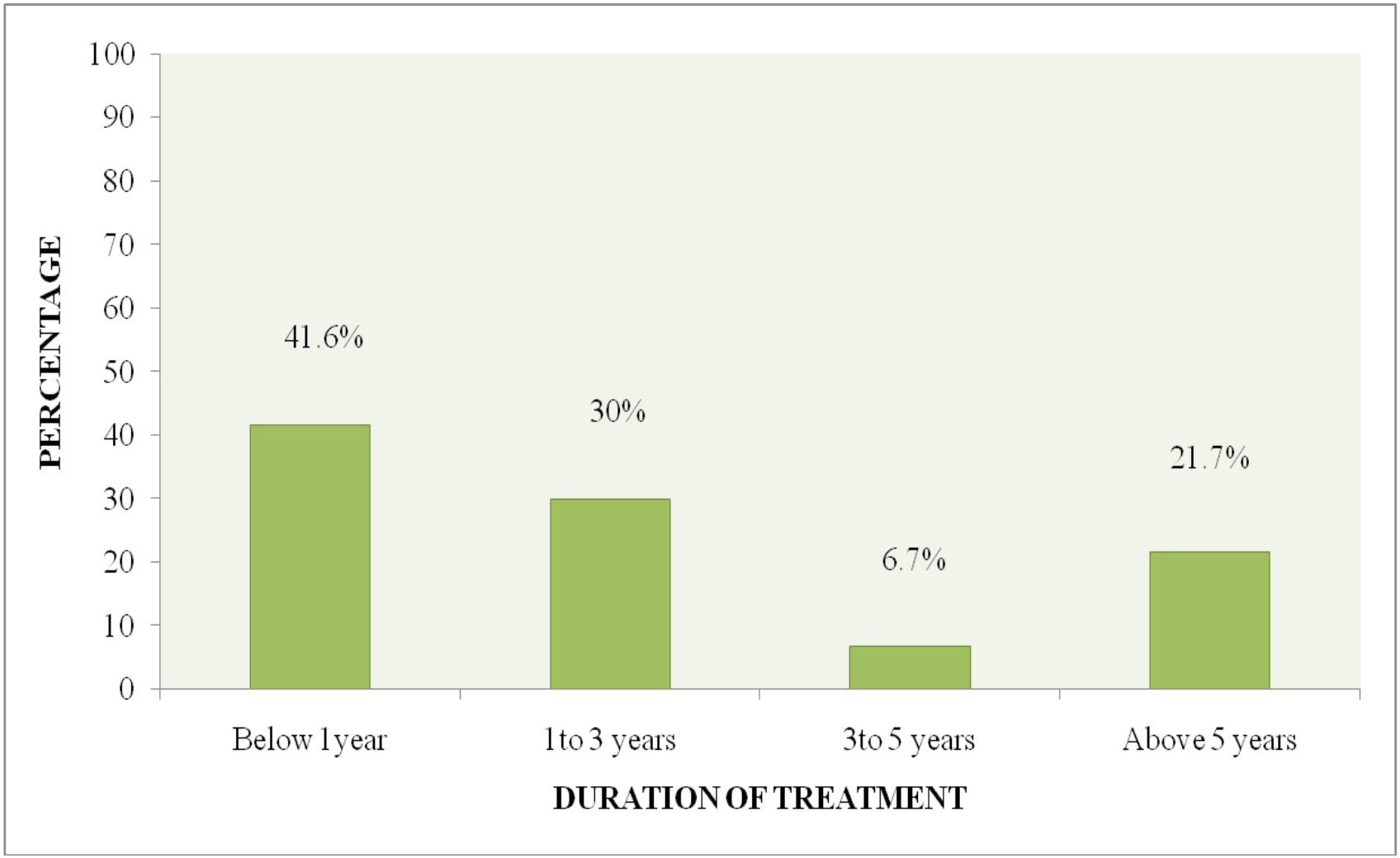


Figure 12: Percentage distribution of patients with hemodialysis according to their duration of treatment

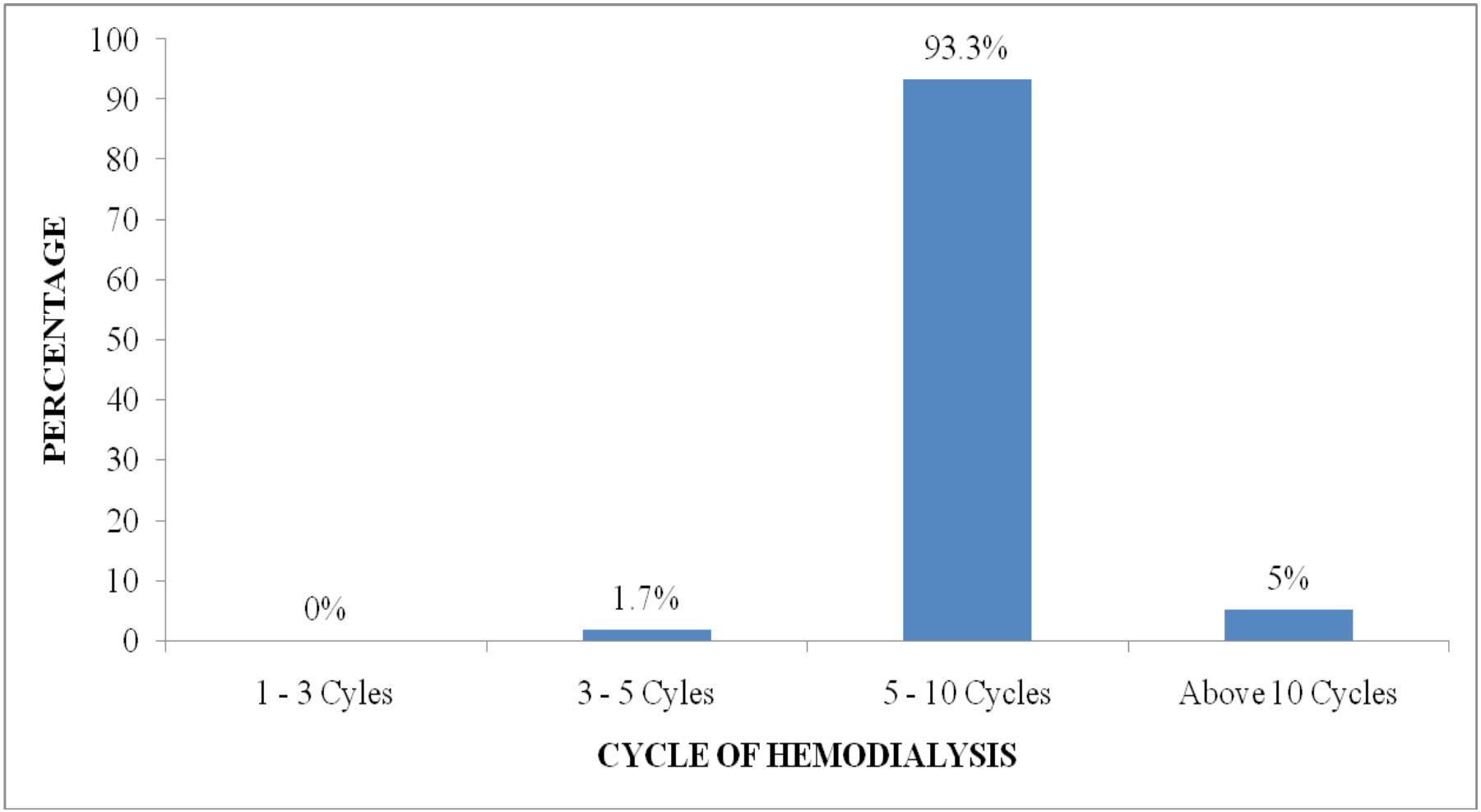


Figure 13 : Percentage distribution of patients with hemodialysis according to their cycle of hemodialysis per month

SECTION B : ASSESS THE PRE TEST AND POST TEST LEVEL OF FATIGUE AMONG PATIENTS WITH HEMODIALYSIS

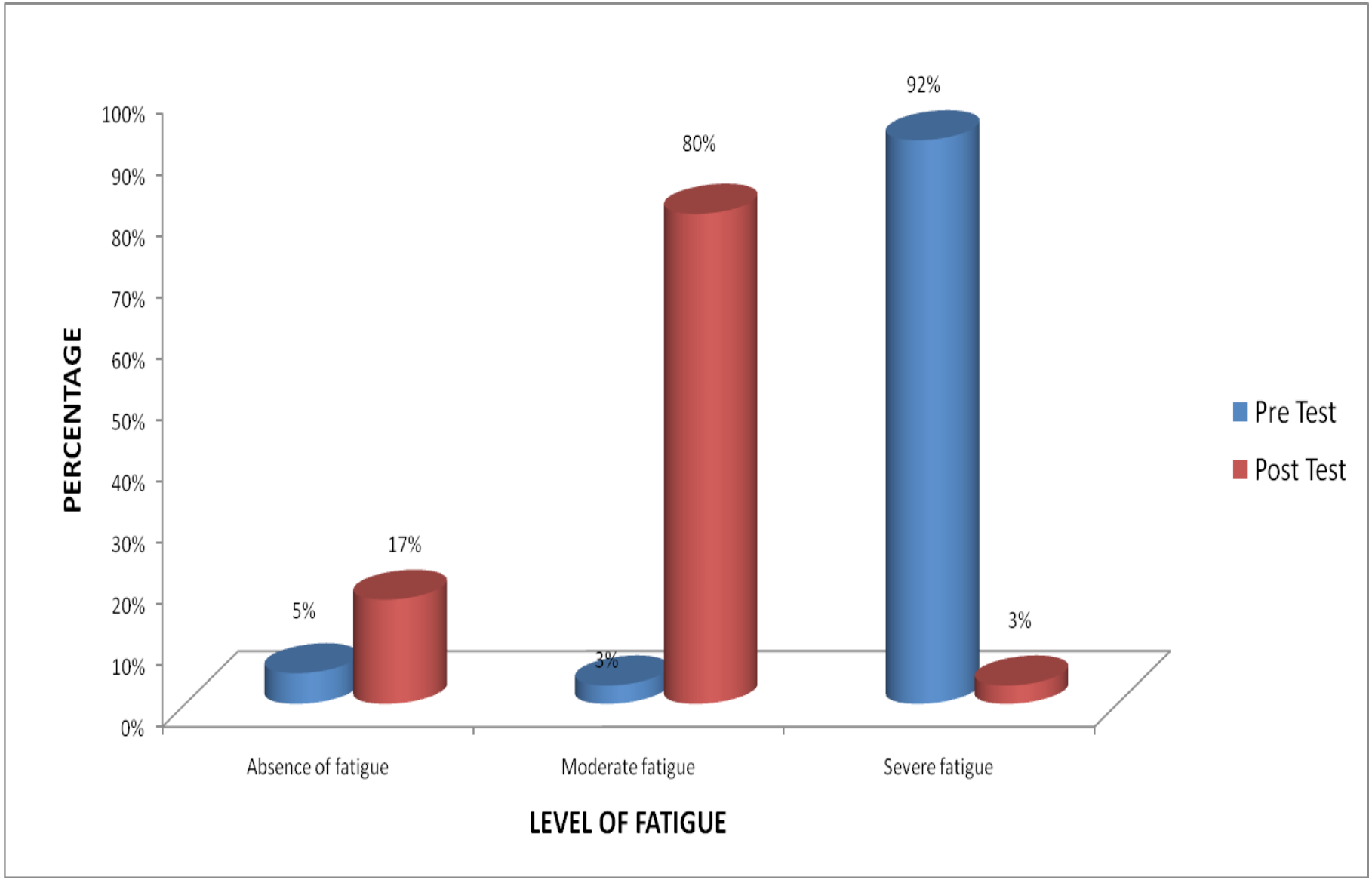
TABLE 2: **Frequency and percentage distribution of pre test and post test level of fatigue among patients with hemodialysis**

n=60

S.NO	LEVEL OF FATIGUE	PRE TEST		POST TEST	
		f	%	f	%
1	Absence of fatigue	3	5	10	17
2	Moderate fatigue	2	3	48	80
3	Severe fatigue	55	92	2	3

Table 2:

Depicts that, in pre test level of fatigue, majority of the patients 55(92%) had Severe level of fatigue, and 3(5%) had absence of fatigue, and 2(3%) had moderate level of fatigue, where as in the post test level of fatigue 48(80%) had moderate level of fatigue, and 10(17%) had absence of fatigue, and 2(3%) had Severe level of fatigue. **Fig (14)**.


PERCENTAGE
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
5%
17%
3%
80%
92%
3%
Absence of fatigue
Moderate fatigue
Severe fatigue
LEVEL OF FATIGUE
Pre Test
Post Test

SECTION C : ASSESS THE PRE TEST AND POST TEST LEVEL OF INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS

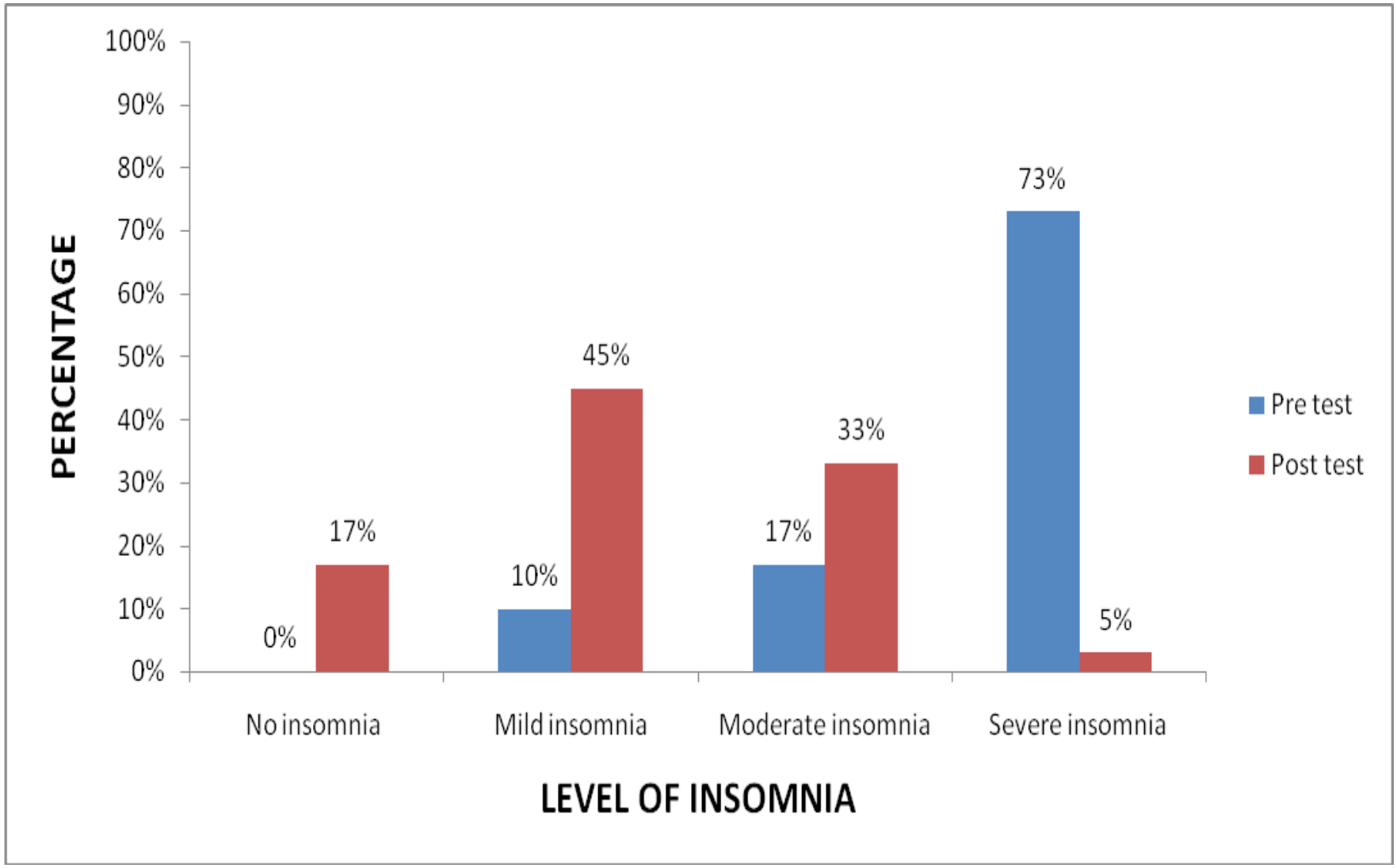
TABLE 3: **Frequency and percentage distribution of pre test and post test level of insomnia among patients with hemodialysis**

n=60

S.NO	LEVEL OF INSOMNIA	PRE TEST		POST TEST	
		f	%	f	%
1	No insomnia	-	-	10	17
2	Mild insomnia	6	10	27	45
3	Moderate severe insomnia	10	17	20	33
4	Severe insomnia	44	73	3	5

Table 3:

Depicts that in pre test level of insomnia, majority of the patient 44(73%) had severe level of insomnia, and 10(17%) had moderate level of insomnia, and 6(10%)had mild level of insomnia, where as in the post test level of insomnia, 27(45%) had mild level of insomnia, and 20(33%) had moderate severe level of insomnia, and 10(17%) had no insomnia, and 3(5%) had severe level of insomnia. **Fig (15).**



patients with hemodialysis

SECTION D : COMPARISON BETWEEN THE PRE TEST AND POST TEST LEVEL OF FATIGUE AMONG PATIENTS WITH HEMODIALYSIS

Table 4: Comparison of mean score, standard deviation, mean difference and paired 't' value of pre test and post test level of fatigue among patients with hemodialysis

n= 60

Sl. No	Variable	Mean	Standard deviation	Mean difference	Paired 't' value	Table value
1	Pre test	38.81	7.47	20.1	16.17	2.00
2	Post test	18.7	7.23			

df= 59 p<0.05

Table 4 shows that the mean pre test score of level of fatigue is 38.81 (SD ±7.47) and post test mean score is 18.7(SD ±7.23) and mean difference is 20.1.The post mean score (18.7) was lower than the pre test mean score is (38.81).The paired 't' value was 16.17 which was significant at P< 0.05 level, which showed that hatha yoga intervention is effective in reducing fatigue.

Therefore, the research hypothesis H_1 that is the mean post test level of fatigue score is significantly lower than the mean pre test level of fatigue scores among patients with hemodialysis, was accepted.

SECTION E : COMPARISON BETWEEN THE PRE TEST AND POST TEST LEVEL OF INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS

Table 5: Comparison of mean score, standard deviation, mean difference and paired 't' value of pre test and post test level of insomnia among patients with hemodialysis

n= 60

Sl. No	Variable	Mean	Standard deviation	Mean difference	Paired 't' value	Table value
1	Pre test	21.28	3.38	9.23	12.3	2.00
2	Post test	12.05	4.48			

df= 59 p<0.05

Table 5 shows that the mean pre test score of level of insomnia is 21.28 (SD ±3.38) and post test mean score is 12.05(SD ±4.48) and mean difference is 9.23. The post mean score (12.05) was lower than the pre test mean score is (21.28).The paired 't' value was 12.3 which was significant at P< 0.05 level , which showed that hatha yoga intervention is effective in insomnia.

Therefore, the research hypothesis H_2 that is the mean post test level of insomnia score is significantly lower than the mean pre test level of insomnia scores among patients with hemodialysis was accepted.

SECTION F: ASSOCIATION BETWEEN THE POST TEST LEVEL OF FATIGUE AMONG PATIENTS WITH HEMODIALYSIS AND THEIR SELECTED DEMOGRAPHIC VARIABLES

TABLE 6: Association between the mean post test level of fatigue among patients with hemodialysis and their selected demographic variables.

n=60

S. No	Demographic Variables	Level of fatigue						X2	Table value	Inference
		Absence of Fatigue		Moderate Fatigue		Severe Fatigue				
		f	%	f	%	f	%			
1.	Age									
	a)45-50 years	5	8.3	20	33.3	1	1.66	8.42	df=4 9.49	NS
	b)51-55 years	2	3.3	16	26.6	-	-			
	c)55-60 years	3	5	12	20	1	1.66			
2.	Sex									
	a)Male	7	11.6	36	60	2	3.3	1.29	df=2 5.99	NS
	b)Female	3	5	12	20	-	-			
3.	Marital status									
	a)Married	7	11.6	42	70	2	3.33			
	b)Un married	2	3.3	1	1.66	-	-	5.9	df=4 9.49	NS
	c)Divorce	-	-	-	-	-	-			
	d)Single	1	1.66	5	8.3	-	-			
4.	Education									
	a)No formal education	6	10	29	48.3	2	3.33			
	b)Primary education	2	3.33	17	28.3	-	-	7.44	df=6 12.59	NS
	c)secondary education	-	-	1	1.66	-	-			
	d) Higher education	-	-	-	-	-	-			
	e) Graduates	2	3.33	1	1.66	-	-			
S.	Demographic	Level of fatigue							Ta	Inf

No	Variables	Absence of Fatigue		Moderate Fatigue		Severe Fatigue		X2	ble value	erence
		f	%	f	%	f	%			
5.	Occupation									
	a) Self employee	5	8.3	26	43.3	-	-			
	b)Private employee	3	5	12	20	-	-	8.83	df=6 12.59	NS
	c)Government employee	-	-	2	3.33	-	-			
	d)Unemployee	2	3.33	8	13.3	2	3.33			
6.	Religion									
	a)Hindu	8	13.3	32	53.3	2	3.33			
	b)Christian	2	3.33	12	20	-	-	2.1	df=4 9.49	NS
	c)Muslim	-	-	4	6.66	-	-			
	d)Others	-	-	-	-	-	-			
7.	Monthly income									
	a) Rs 5000-10,000	4	6.66	16	26.6	-	-			
	b) Rs.10,000 – 15,000	3	5	12	20	1	1.66	2.58	df=6 12.59	NS
	c) Rs.15,000 – 20,000	3	5	18	30	1	1.66			
	d) Above Rs.20,000	-	-	2	3.33	-	-			
8.	Type of family									
	a)Nuclear family	17	11.6	40	66.6	2	3.33	1.42	df=2 5.99	NS
	b)Joint family	3	5	8	13.3	-	-			
9.	Area of residence									
	a) Rural area	7	11.6	32	53.3	2	3.33	26.78	df=2 5.99	S
	b) Urban area	3	5	16	26.6	-	-			
10.	Duration of Illness									
	a)1year	2	3.33	21	35	2	3.33			
	b)1-3years	5	8.33	13	21.6	-	-	117.31	df=6 12.59	S
	c)3-5 years	1	1.66	3	5	-	-			
	d)Above five years	2	3.33	11	18.3	-	-			
S. No	Demographic Variables	Level of fatigue						X2	Table value	Inference
		Absence of Fatigue		Moderate Fatigue		Severe Fatigue				
		f	%	f	%	f	%			

11.	Duration of Treatment									
	a)Below 1year	5	8.3	19	31.6	1	1.66			
	b)1-3 years	3	5	15	25	-	-	7.31	df=6 12.59	NS
	c)3-5 years	2	3.33	2	3.33	-	-			
	d)Above 5years	-	-	12	20	1	1.66			
12.	Cycle of hemodialysis per month									
	a)1-3 cycles	-	-	-	-	-	-	50.56	df=4 9.49	S
	b)3-5 cycles	-	-	-	-	1	1.66			
	c)5-10 cycles	9	15	46	76.6	1	1.66			
	d)Above 10 cycles	1	1.66	2	3.33	-	-			

NS-Not Significant S-Significant $p<0.05$

Table 6: Chi Square values were calculated to find out the association between post test level of fatigue scores among patients with hemodialysis with their demographic variables. The findings revealed that there was no significant association with demographic variables except for area of residence ($\chi^2=26.78$), duration of illness ($\chi^2=117.31$), and cycle of hemodialysis per month ($\chi^2=50.56$), at $p<0.05$ level of significance.

Therefore the research hypothesis H_3 There will be a significant association between post test level of fatigue among patients with hemodialysis with their selected demographic variables, was rejected expect for area of residence, duration of illness, and cycle of hemodialysis per month.

SECTION G: ASSOCIATION BETWEEN THE POST TEST LEVEL OF INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS AND THEIR SELECTED DEMOGRAPHIC VARIABLES

TABLE 7: **Association between the mean post test level of insomnia among patients with hemodialysis and their selected demographic variables**

n=60

S. No	Demographic Variables	Level of insomnia								X2	Table value	Inference
		No insomnia		Mild insomna		Moderate insomna		Severe insomnia				
		f	%	f	%	f	%	f	%			
1.	Age											
	a) 45-50 years	6	10	12	20	6	10	2	3.33	14.26	df=6 12.59	S
	b) 51-55 years	4	6.66	10	16.6	3	5	1	1.66			
	c) 55-60 years	-	-	5	8.33	11	18.3	-	-			
2.	Sex											
	a) Male	7	11.6	20	33.3	16	26.6	2	3.33	0.49	df=3 7.82	NS
	b) Female	3	5	7	11.6	4	6.66	1	1.66			
3.	Marital status											
	a) Married	8	13.3	21	35	20	33.3	2	3.33	19.79	df=6 12.59	S
	b) Un married	2	3.33	-	-	-	-	1	1.66			
	c) Divorce	-	-	-	-	-	-	-	-			
	d) Single	-	-	6	10	-	-	-	-			
4.	Education											
	a) Illiterate	6	10	18	30	13	21.6	-	-	24.6	df=9 16.92	S
	b) Primary education	3	5	7	11.6	7	11.6	2	3.33			
	c) Secondary education	-	-	-	-	-	-	1	1.66			
	d)Higher education	-	-	-	-	-	-	-	-			
	e) Graduates	1	1.66	2	3.33	-	-	-	-			

S. No	Demographic Variables	Level of insomnia								X2	Table value	Inference
		No insomnia		Mild insomna		Moderate insomna		Severe insomnia				
		f	%	f	%	f	%	f	%			
5.	Occupation									61.1	df=9	S

	a)Self employee b) Private employee c) Government employee d) Unemployee	5 2 - 3	8.33 3.33 - 5	18 8 - 1	30 13.3 - 1.66	8 4 - 8	13.3 6.66 - 13.3	- 1 2 0	- 1.66 3.33 0		16.92	
6.	Religion a)Hindu b)Christian c)Muslim d)Others	6 3 1 -	10 5 1.66 -	22 4 1 -	36.6 6.66 1.66 -	13 7 - -	21.6 11.6 - -	1 - 2 -	1.66 - 3.33 -	22.17	df=6 12.59	S
7.	Family monthly income a)Rs5000-10000 b)Rs.10000–15000 c)Rs.15000–20000 d)Above Rs.20,000	4 4 2 -	6.66 6.66 3.33 -	16 10 1 -	26.6 16.6 1.66 -	- 2 18 -	- 3.33 30 -	- - 1 2	- - 1.66 3.33	80.13	df=9 16.92	S
8.	Type of family a)Nuclear family b)Joint family	7 3	11.6 5	24 3	40 5	16 4	26.6 6.66	2 1	3.33 6.66	2.3	df=3 7.82	NS
9.	Area of residence a)Rural area b)Urban area	8 2	13.3 3.33	24 3	40 5	7 13	11.6 21.6	2 1	3.33 1.66	16.14	df=3 7.82	S

S. No	Demographic Variables	Level of insomnia								X2	Table value	Inference
		No insomnia		Mild insomna		Moderate insomna		Severe insomnia				
		f	%	f	%	f	%	f	%			
10.	Duration of Illness a) 1year b) 1-3years c) 3-5 years	4 2 1	6.66 3.33 1.66	16 8 2	26.6 13.3 3.33	3 7 1	5 11.6 1.66	2 1 -	3.33 1.66 -	22.74	df=9 16.92	S

	d) Above five years	3	5	1	1.66	9	15	-	-			
11.	Duration of Treatment											
	a)Below 1year	7	11.6	15	25	3	5	-	-	34.52	df=9 16.92	S
	b)1-3 years	1	1.66	10	16.6	5	8.3	2	3.33			
	c)3-5 years	2	3.33	-	-	1	1.66	1	1.66			
	d)Above 5years	-	-	2	3.33	11	18.3	-	-			
12	Cycle of hemodialysis per month											
	a) 1-3 cycles	-	-	-	-	-	-	-	-	25.16	df=9 16.92	S
	b) 3-5 cycles	-	-	-	-	-	-	1	1.66			
	c) 5-10 cycles	8	13.3	26	43.3	20	33.3	2	3.33			
	d) Above 10 cycles	2	3.33	1	1.66	-	-	-	-			

NS-Not Significant S-Significant $p<0.05$

Table 7: Chi Square values were calculated to find out the association between post test level of insomnia scores among patients with hemodialysis with their demographic variables. The findings revealed that there was significant association with demographic variables except for sex(χ^2 =0.49), and type of family (χ^2=2.3), at $p<0.05$ level of significance.

Therefore the research hypothesis H_4 There will be a significant association between post test level of insomnia among patients with hemodialysis with their selected demographic variables, was accepted expect for sex and type of family.

CHAPTER - V
DISCUSSION

The discussion chapter deals with sample characteristics and objectives of the study. The aim of this present study was to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected Hospitals at Erode.

DISTRIBUTION OF SAMPLE CHARACTERISTICS

Regarding age majority of patients 26 (43.3%) belonged to the age group of 45-50 years, 18(30.0%) belonged to the age group of 51-55 years, and 16(26.7%) belonged to the age group of 56 – 60 years.

Regarding sex, majority of patients 45(75%) were males and 15(25%) were females. These findings are consist with the study findings of **Saran. R. et.al.,(2008),** who reported that while the lowest proportion of women compared to men on hemodialysis was observed in Australia/New Zealand in the age group ≥75 years (31.9%). In all age groups, more men than women were on hemodialysis (59% versus 41% overall).

Regarding marital status, majority of patients 51(85%) were married. 3 (5%) were unmarried and 6(10%) were single.

With regard to educational status, majority of the patients 37(61.7%) had no formal education, 19(31.7%) had primary education. 3(5%) were graduates, and 1(1.6%) had secondary education.

Regarding occupation, majority of patients 31(51.7%) were self employee, 15(25%) were private employee, 12(20%) were unemployed, and 2(3.30%) were government employee. These findings are consist with the study

findings of **Ann Arbor. M.I. et.al(2012**), who reported that, the employment of hemodialysis patients 18(12%) were employed, 49(32%) were unemployed.

Regarding religion, majority of patients 42(70%) belonged to Hindu religion, 14(23.3%) belonged to Christian religion. 4(6.7%) belonged to Muslim religion.

With regard to family monthly income, majority of patients 22(36.7%) were in between Rs 15,000-Rs.20,000, 20(33.3%) were in between Rs 5000-Rs.10,000, 16 (26.7%) were in between Rs 10,000-Rs.15,000 and 2 (3.33%) were above Rs.20,000.

With regard to type of family majority 49 (81.7%) were belongs to nuclear family, and 11(18.3) were belongs to joint family.

With regard to area of residence, belonged to majority 41(68.3%) were in rural area and 19(31.7%) were in urban area.

Regarding duration of illness, majority of patients 25(41.6%) had duration of illness for 1year.18(30%) had duration of illness for1to3years.13(21.7%) had duration of illness for above 5years, and 4(6.7%) had duration of illness for 3 to 5years.

Regarding duration of getting hemodialysis treatment, majority of patients 25(41.6%) had duration of treatment for a period of below 1year, 18(30%) had duration of treatment for a period of1-3years, 13(21.7%) had a duration of treatment for a period of above 5years, and 4(6.7%) had a duration of treatment for a period of 3-5years. These findings are consistent with the findings of **Pisoni. R.L., (2010),** who reported that prevalence of ESRD treatment with dialysis for start as divided into early (up to 120 days), intermediate (121–365 days), and late (over 365 days) periods.

Regarding cycles of hemodialysis per month, majority of patients 56 (93.3%) were had 5-10 cycles per month, 3(5%) were had above 10 cycles per month, and 1(1.7%) were had 3-5 cycles per month.

THE FINDINGS OF THE STUDY ARE DISCUSSED ACCORDING TO THE OBJECTIVES AS FOLLOWS

OBJECTIVES

1. To assess the pretest and post test level of fatigue among patients with hemodialysis.
2. To assess the pre test and post test level of insomnia among patients with hemodialysis.
3. To compare the pre test and post test level of fatigue among patients with hemodialysis.
4. To compare the pre test and post test level of insomnia among patients with hemodialysis.
7. To findout the association between the post test level of fatigue among patients with hemodialysis and their selected demographic variables.
8. To find the association between the post test level of insomnia among patients with hemodialysis and their selected demographic variables.

OBJECTIVE : 1

To assess the pretest and post test level of fatigue among patient with hemodialysis.

In pre test level of fatigue, majority of the patients 55(92%) had Severe level of fatigue, and 3(5%) had absence of fatigue, and 2(3%) had moderate level of fatigue, where as in the post test level of fatigue 48(80%) had moderate level of fatigue, and 10(17%) had absence of fatigue, and 2(3%) had Severe level of fatigue. The study findings are consistent with the findings of **Merlino.G,et.al.,(2009)** who reported that High prevalence of fatigue problems

are reported in hemodialysis patients, , Over 70% of dialysis patients suffer chronically from severe fatigue and tiredness. The age of the study population was 37.1 ± 13.1 (range 19-65 years) years, with 89.3% being males. 44.7% being females reported fatigue.

OBJECTIVE : 2

To assess the pre test and post test level of insomnia among patients with hemodialysis.

In pre test level of insomnia, majority of the patient 44(73%) had severe level of insomnia, and 10(17%) had moderate level of insomnia, and 6(10%)had mild level of insomnia, where as in the post test level of insomnia, 27(45%) had mild level of insomnia, and 20(33%) had moderate level of insomnia, and 10(17%) had no insomnia, and 3(5%) had severe level of insomnia. The study findings are consistent with the findings of **Al-Jahdali.et. al.,(2010**) who reported that, to assess the prevalence of insomnia in patients with renal failure undergoing hemodialysis. The overall mean age of patients who sit for renal dialysis was 53.14 ± 13.92 years. Out of 88 patients, 47 patients (53.4%) were complaining from insomnia, 57.9% of the sample were males and 42.1% were females. Insomnia was reported by 53.4% among 88 patients undergoing hemodialysis.

OBJECTIVE: 3

To compare the pre test and post test level of fatigue among patients with hemodialysis

Data analysis shows that, the mean pre test score of level of fatigue is 38.81 (SD ±7.47) and post test mean score is 18.7(SD ±7.23) and mean difference is 20.1. The post mean score (18.7) was lower than the pre test mean score is (38.81).The paired ‘t’ value was 16.17 which was significant at $P< 0.05$ level.

The study findings are consistent with the findings of **Deligiannis.A.Kouidi.,(2010**), Conducted in prevalence of therapeutic effect on hemodialysis patients in the Hatha yoga exercise group, there was a significant reduction in fatigue and sleep disturbances of (12.7% reduction; *P* = 0.010).

Therefore, the research hypothesis H_1 that is the mean post test level of fatigue score is significantly lower than the mean pre test level of fatigue scores was accepted.

OBJECTIVE : 4

To compare the pre test and post test level of insomnia among patients with hemodialysis

Data analysis shows that the mean pre test score of level of insomnia is 21.28 (SD ±3.38) and post test mean score is 12.05(SD ±4.48) and mean difference is 9.18.The post mean score (12.05) was lower than the pre test mean score is (21.28).The paired 't' value was 12.3 which was significant at P< 0.05 level

The study findings are consistent with the findings of **Uchiyama. M., (2006**), who reported that, 45% of patients (*n*=311; 156 males, 155 females) complained of insomnia, and the average time on dialysis was 60.1±53.8 months. After the intervention 86% of the patients had reduced some sleep disturbance. *P* value <0.05 was considered statistically significant.

Therefore, the research hypothesis H_2 that is the mean post test level of insomnia score is significantly lower than the mean pre test level of insomnia scores was accepted.

OBJECTIVE: 5

To findout the association between the post test level of fatigue among patients with hemodialysis and their selected demographic variables.

Chi Square values were calculated to find out the association between post test level of fatigue scores among patients with hemodialysis with their demographic variables. The findings revealed that there was no significant association with demographic variables except for area of residence (χ^2 =26.78), duration of illness (χ^2 =117.31), and cycle of hemodialysis per month (χ^2=50.56) at P < 0.05 level of significance.

The study findings are consistent with the findings of **Merlino. G.,et.al.,(2009)** who reported that , Over 70% of dialysis patients suffer chronically from severe fatigue and tiredness. The fatigue scores were found to be significantly associated with lesser frequency of dialysis ($P < 0.05$).

Therefore the research hypothesis H_3 There will be a significant association between post test level of fatigue among patients with hemodialysis with their selected demographic variables, was rejected expect for area of residence, duration of illness, and cycle of hemodialysis per month.

OBJECTIVE: 6

To find the association between the post test level of insomnia among patients with hemodialysis and their selected demographic variables.

Chi Square values were calculated to find out the association between post test level of insomnia scores among patients with hemodialysis with their demographic variables. The findings revealed that There was significant association with demographic variables except for sex (χ^2=0.49), and type of family (χ^2=2.3), at p<0.05 level of significance.

The study findings are consistent with the findings of **Hedayati.et.al., (2010)** who reported that, high prevalence of insomnia (60.9%). Insomnia was significantly higher in patients who were on dialysis for more than 1 year (*P*=0.003).

Therefore the research hypothesis H_4 There will be a significant association between post test level of insomnia among patients with hemodialysis with their selected demographic variables, was accepted expect for sex and type of family.

CHAPTER – VI
SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATION AND LIMITATIONS

This chapter is discussed under 5 headings

1. Summary
2. Conclusion
3. Implications
4. Recommendation
5. Limitation

SUMMARY OF THE STUDY

The aim of this present study was to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected Hospital at Erode. The design used for the present study was one group pre test and post test design. The conceptual frame work was based on modified "Wiedenbach's Helping Art of Clinical Nursing Theory (1964)".Sample size was 60. Non probability purposive sampling method was used to select the samples of the study. The data collection period was 6 weeks. The tool used for this study was fatigue severity scale for assessing the level of fatigue and insomnia severity index for assessing the level of insomnia before and after intervention.

Nallaswamy hospital in dialysis unit they are conducting 4 shifts. In each shift 13 to 15 patients are come for dialysis. On the first day 20 samples were collected. The same day, in the data pertaining to the demographic variables was collected by interview then the pre test was conducted to the participants by using fatigue severity scale to assess the level of fatigue, and insomnia severity index to assess the level of insomnia severity, and Hatha yoga was given to the patients individually for 15 days, by using demonstration method. Eash session lasts for about 30 minutes per day, and each day

observed the patients. On the 16th day post test was conducted for the using same tool. The same procedure was followed for the remaining 40 samples and data were collected."

The data was analyzed using descriptive statistics and inferential statistics.

MAJOR FINDINGS OF THE STUDY

The major findings are,

- Regarding age, majority of patients 26 (43.3%) belonged to the age group of 45-50 years, 18(30.0%) belonged to the age group of 51-55 years, and 16(26.7%) belonged to the age group of 56 – 60 years
- Regarding sex, majority of patients 45(75%) were males and 15(25%) were females.
- Regarding marital status, majority of patients 51(85%) were married. 3 (5%) were unmarried and 6(10%) were single.
- With regard to educational status, majority of the patients 37(61.7%) had no formal education, 19(31.7%) had primary education. 3(5%) were graduates, and 1(1.6%) had secondary education.
- Regarding occupation, majority of patients 31(51.7%) were self employee, 15(25%) were private employee, 12(20%) were unemployed, and 2(3.30%) were government employee.
- Regarding religion, majority of patients 42(70%) belonged to Hindu religion, 14(23.3%) belonged to Christian religion. 4(6.7%) belonged to Muslim religion.
- With regard to family monthly income, majority of patients 22(36.7%) were in between Rs 15,000-Rs.20,000, 20(33.3%) were in between Rs 5000-Rs.10,000, 16 (26.7%) were in between Rs 10,000-Rs.15,000 and 2 (3.3%) were above Rs.20,000.
- With regard to type of family majority 49 (81.7%) were belongs to nuclear family, and 11(18.3) were belongs to joint family.

- With regard to area of residence, belonged to majority 41(68.3%) were in rural area and 19(31.7%) were in urban area.
- Regarding duration of illness, majority of patients 25(41.6%) had duration of illness for 1year.18(30%) had duration of illness for1to3years.13(21.7%) had duration of illness for above 5years, and 4(6.7%) had duration of illness for 3 to 5years.
- Regarding duration of getting hemodialysis treatment, majority of patients 25(41.6%) had duration of treatment for a period of below 1year, 18(30%) had duration of treatment for a period of1-3years, 13(21.7%) had a duration of treatment for a period of above 5years, and 4(6.7%) had a duration of treatment for a period of 3-5years.
- Regarding cycles of hemodialysis per month, majority of patients 56(93.3%) were had 5-10 cycles per month, 3(5%) were had above 10 cycles per month, and 1(1.7%) were had 3-5 cycles per month.
- With regard to level of fatigue, the paired 't' value was 16.17(table value=2.00) at P< 0.05 level of significance and post test mean score (18.7) was lower than the pre test mean score is (38.81), which showed that there is a significant reduction in level of fatigue.
- In relation with insomnia, the paired 't' value was 12.3 (table value=2.00) at P< 0.05 level of significance and post test mean score (12.05) was lower than the pre test mean score(21.28). which showed that there is a significant reduction in level of insomnia.
- The association between post test level of fatigue scores among patients with hemodialysis with their demographic variables using chi square value, revealed that there was no significant association with demographic variables except for area of residence (χ^2 =26.78), duration of illness(χ^2 =117.31),and

cycle of hemodialysis per month(χ^2=50.56), at p<0.05 level of significance.

- The association between post test level of insomnia scores among patients with hemodialysis with their demographic variables using chi square value, revealed that there was significant association with demographic variables except for sex(χ^2=0.49), and type of family (χ^2=2.3), at p<0.05 level of significance.

CONCLUSION

The present study was conducted to assess the effectiveness of Hatha yoga on fatigue and insomnia among patients with hemodialysis in selected hospital, Erode. The mean pre test score of level of fatigue is 38.81 (SD ±7.47) and post test mean score is 18.7(SD ±7.23) and mean difference is 20.1.The post mean score (18.7) was lower than the pre test mean score is (38.81).The paired 't' value was 16.17 which was significant at P< 0.05 level. This shows that there is a significant reduction in the level of fatigue. The mean pre test score of level of insomnia is 21.28 (SD ±3.38) and post test mean score is 12.05(SD ±4.48) and mean difference is 9.23. The post mean score (12.05) was lower than the pre test mean score is (21.28).The paired 't' value was 12.3 which was significant at P< 0.05 level. This shows there is a significant rreduction in the level of insomnia.

The results of the study concluded that hatha yoga was effective in reducing fatigue and insomnia among patients with hemodialysis. The hatha yoga is one of the innovative relaxation which can be used to all and helps to keep away the stress to human beings.

IMPLICATIONS

The findings of the study have certain important implication for nursing service, nursing education, nursing administration, and nursing research.

Nursing Service

- ♣ Nurse can be motivated to practice various non pharmacological measures such as hatha yoga to reduce the level of fatigue and insomnia among patients with hemodialysis
- ♣ Nurse as the change agent, can introduce the various measures for the reduction of fatigue and insomnia among patients with hemodialysis.

Nursing Education

- ♣ The nurse educator can orient the students with alternative therapies in reducing the level of fatigue and insomnia among patients with hemodialysis. Nurse Educators should motivate the students to do mini projects on alternative therapies to reduce fatigue and insomnia among patients with hemodialysis.
- ♣ Nurse educators should conduct workshops/ seminars to update the knowledge of students to promote practicing alternative therapies among patients with hemodialysis.
- ♣ The nurse educator can include hatha yoga as a mean of non pharmacological therapy in the curriculum, which can be adopted by the students and the nursing personnel.

Nursing Administration

- ♣ Nurse administrator can organize continuing education programmes regarding promoting optimal wellbeing of patients living with hemodialysis.

- ♣ Nurse administrator can organise conferences and can enhance the knowledge and practice of alternative therapies among patients with hemodialysis to reduce fatigue and insomnia.
- ♣ Nurse administrator can prepare and distribute information booklet about hatha yoga to patients with hemodialysis
- ♣ Nurse administrator should conduct inservice education to disseminate the research findings through continuous nursing education to all nurses
- ♣ Pamplets,leaflets about hatha yoga can be made available to nursing staff in the dialysis ward and to nurse educators in nursing educational institution**.**

Nursing Research

- ♣ The study findings can be a baseline for further studies to build upon for improving the body of knowledge in nursing
- ♣ The study findings can be effectively utilized by the emerging researchers to conduct further studies.

RECOMMENDATION

Based on the findings the following recommendations are stated

- Similar study can be replicated in a larger samples thereby findings can be generalized to a large population.
- Experimental study can be done to assess the effectiveness of hatha yoga in reducing fatigue and insomnia among patients with hemodialysis.
- A study can be done by maximizing the time and duration of hatha yoga.

LIMITATIONS

- ♣ Since Hatha yoga is a new approach, so more time was spend in clearing their doubts.

BIBLIOGRAPHY

BOOK REFERENCES

1. BT Basavanthappa (2003), ***Medical Surgical Nursing,*** (1st ed), New Delhi; Jaypee publication; Pp. 212-217.
2. Black. M. J. et. al. (2001), ***Medical Surgical Nursing,*** (6th ed), Philadelphia: W.B. Saunders Co, Pp.1844-1849.
3. Brunner et.al (2010), ***Textbook Of Medical Surgical Nursing,*** (10th ed), Lippincott Williams Wilkins, Pp. 534-538.1251-1254
4. Meenakshi.M (2012), ***Textbook Of preventive medicine,*** (1st ed), new delhi,N.R Brothers publication, Pp.340-344.
5. Lewis et al (2011), ***Medical Surgical Nursing,*** (7th ed), Missouri: Mosby Publishers, Pp. 569-575.
6. Linda et.al (1999), ***Understanding Medical Surgical Nursing,*** USA; F.A. Davis; Pp.321-324.
7. Neelam.K. (2009), ***Textbook of community health nursing,*** (1st ed),Jalandar.S company , Pp.223-228.
8. Prabhakara.GN. (2004), ***Textbook of community health nursing ,*** (1st ed), New Delhi: Jaypee Brothers Publication. Pp.341-347.
9. Sundar Rao, P. S. S., Richard,J., (2006). ***Introduction To Biostatistics And Research Methods.***(4th ed.).New Delhi: Prentice- Hall.Pp.94-100
10. Suresh K Sharma., (2012).***nursing research and statistics.*** (1sted.). Elsevier india private limited.. Pp. 331-349.
11. Basavanthappa,B.T., (2007).***Nursing Theories***.(1st ed.). New Delhi: Jaypee brothers.Pp.147-168.
12. Kasturi.S.R., (2000).***Textbook of introduction of nursing*** (3rded). Chennai, B.I Publications private limited,. Pp.539-547.
13. White L., (2002). ***Basic Nursing.*** (1st ed). London: Delmae Thomson Publishers. Pp.227-240.
14. Gulani K.K ., (2006)**.. *Textbook of community health nursing*** (1st ed). Newdelhi : kumar Publishers. Pp.102-142.
15. Ghai O.P et al ., (1999)**.. *Essential preventive medicine*** (1st ed). Newdelhi : vikas Publishers. Pp.416-448.

16. Vijay .E,et al ., (2004)**.. *Textbook of community medicine for medical nursing and paramedical students***(2nd ed). Chennai: Beacon zen Publishers. Pp.24-28.
17. Sridhar Rao.B., (2006). ***Textbook of community health nursing*** (1sted). Newdelhi: AITBS Publishers and distributers. Pp.203-213.

JOURNALS

18. Raghuram N.V et al., (2003).yoga breathing techniques in exercise induced asthma, ***international journal of yoga therapy,*** Pp.45-49.
19. Sharma,K et,al., (1993).yoga therapy in dialysis, ***international journal of yoga therapy.***Pp. 20-28.
20. Khanam AA et al., (1996). Study of renal failure and autonomic functions after yoga training.. ***Indian journal physiol pharmacol.*** Pp. 318-324.
21. Naveen K et.al., (2004). Randomised trial of yoga as a complementary therapy for dialysis**.** Pp. 96-101.
22. Rev.Respir .et.al., (1990).Diagnostic standards and classification of renal failyre.. ***American thoracic society.*** Pp.725-735.
23. Makwana K.et al., (1988). Effect of short term yoga practice on renal failure tests. ***Indian journal. physiol pharmacol.*** Pp.202-208.
24. Crudu.V.et al., (2003). Resistance to antituberculosis drug and practices in drug susceptibility test. ***International journal of renal failure.*** Pp. 336-342.
25. Singh.V.et al., (1990). Effect of yoga breathing exercise (pranayama) on airway reactivity in subjects withdialysis. ***Journal of renal physiology.*** Pp.1381-1383.
26. Murthy. KRJ, et.al. (1983). Effect of pranayama ondialysis, ***Lung India*** , Pp.187-191.
27. Srivastava.SR.et.al.(2013) Tuberculosis active case finding survey in an urban area of India. ***Journal Of Research health science*** , Pp.19-23.

28. Murhekar.MV.et.al,(2004) Tuberculosis situation among tribal population of car Nicobar. ***Regional Medical Research Centre. .*** Pp.836-843.
29. Kang.CI.et.al(2006).hemodialysis in an korea soliders Incidence, Drug resistance and Treatment out comes. ***International journal of renal disease.*** Pp.970-974.
30. Itah.AY.et.al (2005).Epidermiology of Endemicity of renal failure in Southeastern .Nigeria. ***Southeast Asian journal topical medical public health.*** Pp.317-323.
31. Nwachuku.N.C.et.al (2009). Epidermiology of renal failure in some parts of Abia state. ***Asian Journal Of Epidermiology.*** Pp.3-19.
32. Suhadev.M.et.al (2011). Alcohol use disorders among renal failure patients.***Indian Journal Of renal failure.*** Pp.1371-1378.
33. Kimerling.M.E. et. al (2002). Prevalence of dialysis among HIV infected patients.***International Journals Of renal failure*** Pp. 988-994.

NET REFERENCES

34. http://www.fitnessfinger.com/Article/yoga-for-tb-406.aspx
35. http://www.yogawiz.com/articles/723/yoga-and-disease/yoga-and-tuberculosis.html#continued
36. http://www.ediblenature.com/shared/naturalcures/kidney failure.html
37. http://www.livestrong.com/article/436768-renal-and-kidney failure
38. http://www.thefreelibrary.com/Successful+use+of+an+inhalational+phytochemical+to+treat+renal disease...-at 0115835544
39. http://www.pacificcollege.edu/acupuncture-massage-news/articles/677-the-many-benefits-of-chinese-cupping.html
40. http://www.healthguidance.org/entry/4908/1/Home-Remedies-for-renal -disease .html
41. http://www.slideshare.net/drshama65/1-introduction-yoga-therapy-for-the-management-of-renal -disorders
42. http://yousigma.com/health/renal failure.pdf

43. http://www.yogatherapyconference.com/what_is_yoga_therapy.html
44. http://yogatherapytoronto.com/FAQ
45. http://www.artofliving.org/yoga-and-pranayama
46. http://www.uptodate.com/contents/epidemiology-of-kidney disease
47. http://scialert.net/fulltext/?doi=aje.2009.13.19
48. http://www.ncbi.nlm.nih.gov/pubmed/15945557
49. http://www.mrc.ac.uk/Achievementsimpact/Storiesofimpact/renal disease/index.htm

APPENDIX – A

Dr. K. M. NALLASWAMY HOSPITAL

Dr. Nallaswamy Building,

93, Power House Road, ERODE - 638 001.

Phone : 2255481, 2252122

01.10.2014

CERTIFICATE

This is to certify that Ms.S.Ramya, 2nd year, M.Sc(Nursing), student of Bishops college of Nursing , Dharapuram has completed her Research project on "A study to assess the effectiveness of hatha yoga on fatigue and insomnia among patients with haemodialysis in Dr.K.M.Nallaswamy hospital, Erode" for the period from 20.08.2014 to 30.09.2014. During that period her conduct and character were good.

Dr. N.YOHEESWARAN
M.B.B.S.,
GEN SURGEON
Reg : 91862

APPENDIX – B

LETTER SEEKING EXPERT'S OPINION FOR CONTENT VALIDITY

From

Ms.Ramya.S,
Msc(Nursing) ll Year,
Bishop's college of Nursing,
Dharapuram.

To

Respected Madam/Sir,

Sub : Requisition for content validity of tool.

I am doing Msc(Nursing) ll year in Bishop's college of Nursing, Dharapuram under The Tamil Nadu Dr.M.G.R. Medical University, Guidy, Chennai. As a partial fulfillment of my M.Sc(Nursing) Degree Programme, I am conducting a research on, "**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** A tool has been developed for research study. I am sending the above stated for your expert and valuable opinion. I will be thankful for your kind consideration. Kindly return it to the undersigned.

Thanking you,

Yours faithfully,

(RAMYA. S)

Enclosure:

1) Certificate of content validity.
2) Statement of the problem, objectives, operational definition, hypothesis.
3) Descripition of the tool and tool for data collection.
4) Self address envelope.

APPENDIX – C

MEDICAL SURGICAL NURSING

LIST OF EXPERTS OF VALIDATION

1. **Dr. N. YOHEESWARAN, M.B.B.S., DNB**
   Gen Surgeon, (Consultant Urologist)
   Nallaswamy Kidney Care Hospital,
   Erode.

2. **Mrs. S. MANORANJITHAM,**
   Principal
   Sakthi College of Nursing,
   Achimangalam,
   Karur – 5

3. **Mrs. GRACY, M.Sc., (N)**
   Asst. Professor,
   Dhanvantri College of Nursing,
   Erode.

4. **Mrs. S. LAVANYA, M.Sc., (N),**
   HOD of Medical Surgical Nursing,
   Nanda College of Nursing,
   Erode.

5. **Mrs. S. SUDHA DEVI, M.Sc., (N)**
   Asst. Professor,
   Medical Surgical Nursing Department,
   Vellalar College of Nursing,
   Thindal, Erode.

APPENDIX – D

CERTIFICATE FOR VALIDITY

This is to certify that the standardized tool on"**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** has been validated by me and found appropriate with mentioned suggestions.

Signature : 

Name : Dr. N.YOHEESWARAN
M.B.B.S.,(Dip) N3
GEN SURGEON
, Reg : 91662

Designation :

College :

CERTIFICATE FOR VALIDITY

This is to certify that the standardized tool on"**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** has been validated by me and found appropriate with mentioned suggestions.

Signature : S. Manoranjitham

Principal,
Sakthi College of Nursing,
Achimangalam, KARUR - 5.

Name : S. MANORANJITHAM

Designation : PRINCIPAL

College : SAKTHI COLLEGE OF NURSING-KARUR

CERTIFICATE FOR VALIDITY

This is to certify that the standardized tool on"**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** has been validated by me and found appropriate with mentioned suggestions.

SIGNATURE: C.Grazy 30/1/2015

NAME: MRS. C. GRAZY.

Mrs.C.GRAZY.M.Sc.,(N)
Medical Surgical Nursing
RN: 70475 RM:75756

DESIGNATION: Asst. professor.

COLLEGE: Dhanvanthri college of Nursing, Erode.

CERTIFICATE FOR VALIDITY

This is to certify that the standardized tool on"**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** has been validated by me and found appropriate with mentioned suggestions.

Signature : S. Lavanya

S. LAVANYA, M.Sc(N)., Ph.D.,
HOD, MEDICAL SURGICAL NURSING
NANDHA COLLEGE OF NURSING
ERODE-52.

Name : S. LAVANYA

Designation : HOD, MEDICAL SURGICAL NURSING

College : NANDHA COLLEGE OF NURSING
ERODE - 52

CERTIFICATE FOR VALIDITY

This is to certify that the standardized tool on "**A study to assess the effectiveness of hatha yoga on fatigue and insomnia among patients with hemodialysis in selected hospital at Erode".** has been validated by me and found appropriate with mentioned suggestions.

Vellalar College of Nursing
Maruthi Nagar
Thindal
Erode - 638 012

SIGNATURE:

NAME: M & M. SUDHADEVI

DESIGNATION: READER i/c.

COLLEGE: VELLALAR COLLEGE OF NURSING,
THINDAL, ERODE.

APPENDIX – E

CERTIFICATE FOR ENGLISH EDITING
TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, "**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** Done by Ms. S. Ramya, II year M.Sc., Nursing student of Bishop's College of Nursing, Dharapuram, is edited for English language appropriateness by

SIGNATURE

NAME A.RAMASAMY M.A.,M.Ed.,
P.G.Asst & NCC Officer,
NCC J124167
CSI BOYS Hr. Sec. School
ERODE - 638 001.

DATE 5.8.14

ADDRESS

APPENDIX – F

CERTIFICATE FOR TAMIL EDITING
TO WHOM SO EVER IT MAY CONCERN

This is to certify that the dissertation work, "**A STUDY TO ASSESS THE EFFECTIVENESS OF HATHA YOGA ON FATIGUE AND INSOMNIA AMONG PATIENTS WITH HEMODIALYSIS IN SELECTED HOSPITAL AT ERODE".** Done by Ms. S. Ramya, II year M.Sc., Nursing student of Bishop's College of Nursing, Dharapuram, is edited for Tamil language appropriateness by

SIGNATURE

NAME

DATE 05.08.14

ADDRESS C.S.I. BOYS Hr. Sec. SCHOOL, ERODE.

APPENDIX – G

ASANA ANDIAPPAN COLLEGE OF YOGA AND RESEARCH CENTRE

Approved by Tamil Nadu Physical Education & Sports University

Recognised by Govt. Of TN – G.O. MS.NO. 168/97 - Regd. 122/93

This is to certify that Miss. **RAMYA.S** II Year M.Sc Nursing, Bishop's College of Nursing, Dharapuram has successfully participated in the Yoga Training held at **25.7.14 to 30.7.14**. During the training period her conduct was good.

MR. ADI BHAGAVAN. S M.sc.,(Yoga)

The Program Co-Ordinator

APPENDIX – H

PART – I

TOOL ENGLISH

DEMOGRAPHIC VARIABLES

1. Age in years
   a) 45 – 50 years
   b) 51 – 55 years
   c) 55 – 60 years

2. Sex
   a) Male
   b) Female

3. Marital status
   a) Married
   b) Unmarried
   c) Divorce
   d) Single

4. Educational status
   a) No formal education
   b) Primary education
   c) Secondary education
   d) Higher secondary
   e) Graduate

5. Occupation
   a) Self employee
   b) Private employee
   c) Government employee
   e) Unemployee

6. Religion
   a) Hindu
   b) Christian
   c) Muslim
   d) Others

7. Family monthly income

a) RS.5000-10,000

b) RS 10,000-15,000

c) RS.15,000-20,000

d) Above RS.20,000

8. Types of family

a) Nuclear family

b) Joint family

9. Area of residence

a) Rural area

b) Urban area

10. Duration of illness

a) Below1 year

b) 1-3 years

c) 3-5 years

d) Above 5 years

11) Duration of treatment

a) Below 1year

b) 1 –3 years

c) 3– 5 years

d) Above 5years

12) Cycle of hemodialysis per month

a) 1-3cycles

b) 3-5cycles

c) 5-10cycles

d) Above 10cycles

FATIGUE SEVERITY SCALE (FSS)

	Completely Disagree						**Completely Agree**
1. My motivation is lower when I am fatigued.	1	2	3	4	5	6	7
2. Exercise brings on my fatigued.	1	2	3	4	5	6	7
3. I am easily fatigued.	1	2	3	4	5	6	7
4. Fatigue interferes with my physical functioning.	1	2	3	4	5	6	7
5. Fatigue causes frequent problems for my.	1	2	3	4	5	6	7
6. My fatigue prevents sustained physical functioning.	1	2	3	4	5	6	7
7. Fatigue nterferes with carrying out certain duties and responsibilities.	1	2	3	4	5	6	7
8. Fatigue is among my 3 disabling symptoms.	1	2	3	4	5	6	7
9. Fatigue interferes with my work.	1	2	3	4	5	6	7

Guidelines for Scoring/Interpretation:

CATEGORIES:

Absence of fatigue 1 – 9

Moderate fatigue 10 – 36

Severe fatigue 37 – 63

Insomnia Severity Index

The Insomnia Severity Index has seven questions. The seven answers are added up to get a total score. When you have your total score, look at the 'Guidelines for Scoring/Interpretation' below to see where your sleep difficulty fits.

For each question, please CIRCLE the number that best describes your answer.

Please rate the CURRENT (i.e. LAST 2 WEEKS) SEVERITY of your insomnia problem(s).

Insomnia Problem	None	Mild	Moderate	Severe	Very Severe
1. Difficulty falling asleep	0	1	2	3	4
2. Difficulty staying asleep	0	1	2	3	4
3. Problems waking up too early	0	1	2	3	4

4. How SATISFIED/DISSATISFIED are you with your CURRENT sleep pattern?

Very Satisfied	Satisfied	Moderately Satisfied	Dissatisfied	Very Dissatisfied
0	1	2	3	4

5. How NOTICEABLE to others do you think your sleep problem is in terms of impairing the quality of your life?

Not at all Noticeable	A Little	Somewhat	Much	Very Much Noticeable
0	1	2	3	4

6. How WORRIED/DISTRESSED are you about your current sleep problem?

Not at all Worried	**A Little**	**Somewhat**	**Much**	**Very Much Worried**
0	1	2	3	4

7. To what extent do you consider your sleep problem to INTERFERE with your daily functioning (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.) CURRENTLY?

Not at all Interfering	**A Little**	**Somewhat**	**Much**	**Very Much Interfering**
0	1	2	3	4

Guidelines for Scoring/Interpretation:

Add the scores for all seven items (questions 1 + 2 + 3 + 4 + 5 +6 + 7) = _____your total score Total score

categories:

0–7 = No clinically significant insomnia

8–14 = Subthreshold insomnia

15–21 = Clinical insomnia (moderate severity)

22–28 = Clinical insomnia (severe)

TOOL TAMIL

gphpT –m

rKjha FLk;g fhuzpfs;

1) taJ:

m) 45 - 50 tUlq;fs;
M) 51 – 55 tUlq;fs;
,) 55 – 60 tUlq;fs;

2) ghypdk;:

m) Mz;
M) ngz;

3) jpUkz epiy:

m) jpUkzkhdth;

M) jpUkzkhfhjth;

,) tpthfuj;J ngw;wth;

<) tpjit

4) fy;tpj;jFjp:

m) gbf;fhjth;
M Muk;gf;fy;tp
,) cah; epiyf;fy;tp
<) Nky; epiyf;fy;tp
c) gl;ljhhp

5) njhopy;:

m) Raj;njhopy;

M) jdpahh; Ntiy

,) muRg; gzp

<) Ntiy ,y;yhjth;

6) kjk; :

m) ,e;J

M) fpU];j;Jth;

,) K];ypk;

<) kw;wit

7) FLk;g khj tUkhdk;:

m) &.5000 - &.10>000

M) &.10>000 - &.15>000

,) &.15>000 - &.20>000

<) &.20>000f;F Nky;

8) FLk;g epiy:

m) jdpf;FLk;gk;.

M) $l;Lf;FLk;gk;.

9) trpf;Fk; ,lk;:

m) fpuhkg;Guk;.

M) efh;g;Guk;.

10) cly;epiy rhpapy;yhj fhyk;:

m) 1 tUlk;.

M) 1-3 tUlk;.

,) 3-5 tUlk;.

<) 5 tUlj;jpw;F Nky;.

11) ,uj;j Rj;jpfhpg;G rpfpr;ir ngw;W tUk; fhyk;:

m) 1 tUlj;jpw;F Fiwthf.

M) 1-3 tUlk;.

,) 3-5 tUlk;.

<) 5 tUlj;jpw;F Nky;.

12) khjj;jpw;F ,uj;jRj;jpfhpg;G Row;r;rpKiw:

m) 1-3 Kiw

M) 3-5 Kiw

,) 5-10 Kiw

<) 10 Kiwf;F Nky;.

Nrhh;tpd; jPtpuj;jpd; msT

1.	ehd; Nrhh;thf ,Uf;Fk; NghJ vd;Dila Cf;fk; jsh;tilfpwJ.	1	2	3	4	5	6	7
2.	clw;gapw;rpahy; Nrhh;tilfpNwd;.	1	2	3	4	5	6	7
3.	ehd; Rygkhf Nrhh;T milfpNwd;.	1	2	3	4	5	6	7
4.	Nrhh;T vd;Dila cly; ,af;fj;jpy; ,ila+W jUfpwJ.	1	2	3	4	5	6	7
5.	cly; Nrhh;T vdf;F mbf;fb gpur;ridfs; jUfpwJ.	1	2	3	4	5	6	7
6.	vd;Dila rPuhd cly; ,af;fj;ij Nrhh;T jilnra;fpwJ.	1	2	3	4	5	6	7
7.	rpy flikfisAk;> nghWg;GfisAk; nra;tjw;F Nrhh;T ,ila+whf cs;sJ.	1	2	3	4	5	6	7
8.	vd; Nrhh;T nraypof;f mwpFwpfs; %d;wpd; kj;jpapy; ,Uf;fpwJ. (cly; Nrhh;T > cstpay; Nrhh;T> kd Nrhh;T)	1	2	3	4	5	6	7
9.	Nrhh;T vd;Dila Ntiyf;F ,ila+W jUfpwJ.	1	2	3	4	5	6	7

Jhf;fkpd;ikapd; jPtpuj;jpd; FwpaPL.

t. vz;.	Jhf;fkpd;ikapd; gpur;rid	xd;Wkpy;iy	Fiwthf	eLepiy	mjpfkhf	kpf mjpfkhf
1.	Jhf;fk; tUtjpy; rpukk;	0	1	2	3	4
2.	Jhq;Ftjpy; rpukk;	0	1	2	3	4
3.	rPf;fpukhf Jhf;fj;jpy; ,Ue;J vOtjpy; gpur;rid	0	1	2	3	4
4.	jw;Nghija cwq;Fk; gof;fj;jpy; vt;tsT jpUg;jp/ jpUg;jpapd;ik milfpwPh;fs;? 0- KOjpUg;jp 1- jpUg;jp 2- eLepiy jpUg;jp 3- jpUg;jpapd;ik 4- mjpf jpUg;jpapd;ik					
5.	cwq;Ftjpy; cs;s rpf;fyhy; cq;fSila tho;f;ifj;juk; ghjpg;giltJ kw;wth;fshy; vt;tsT Jhuk; ftdpf;fg;gLfpwJ? 0- xUNghJk; ftdpf;fg;gltpy;iy. 1- rpwpjsT 2- XusT 3- mjpfkhf 4- kpf mjpfkhf					
6.	cq;fs; jw;Nghija cwq;Ftjpy; cs;s rpf;fyhy; ePq;fs; vt;tsT ftiy/kd tUj;jk; milfpwPh;fs;? 0- xUNghJk; ftdpf;fg;gLtjpy;iy. 1- rpwpjsT 2- XusT 3- mjpfkhf 4- kpf mjpfkhf					
7.	jw;NghJ cq;fSila md;whl eltbf;iffspy; cwq;Ftjpy; cs;s gpur;ridfshy; vt;tsT ,ila+W Vw;gLfpwJ vd;W fUJfpwPh;fs;? 0- xUNghJk; ,ila+W ,y;iy. 1- rpwpjsT 2- XusT 3- mjpfkhf 4- kpf mjpfkhd ,ila+W.					

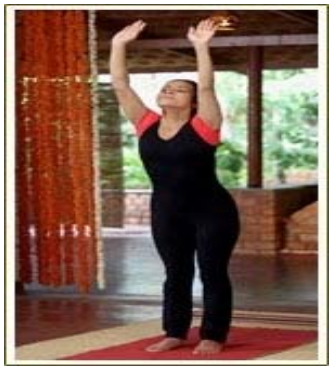
APPENDIX – I

PROCEDURE

HATHA YOGA

Step – 1

Ardha chacrasana – Standing Backward Bend



- Stand straight with feet together and arms alongside the body.
- Balance your weight equally on both feet
- Breathing in, extend your arms overhead, palms facing each other.
- Breathing out, gently bend backwards pushing the pelvis forward, keeping the a\rms in line with the ears, elbows and knees straight, head up, and lifting your chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax.
- Practice this step for 3minutes.

Step 2

Ar **Ardha chacrasana – Standing Foreward Bend**

- Stand straight with feet together and arms alongside the body.
- Balance your weight equally on both feet
- Breathing in, extend your arms Foreward Bend the, palms facing each other.
- Breathing out, gently bend backwards pushing the pelvis forward, keeping the arms in line with the ears, elbows and knees straight, head mild down, and lifting your chest towards the ceiling.
- Hold. Breathing in, come back up.
- Breathing out, bring the arms down and relax.
- Practice this step for 3minutes

Step – 3

Mountain Pose (Beginning Posture)

- Stand up straight with your legs hip-width apart. Keep your feet parallel to each other.
- Keep your shoulders tracking down your back and lengthen the back of your neck.
- Engage your leg muscles by lifting your kneecaps.
- Keep your throat soft and relax your jaw.
- Feel centred on both feet. You can achieve this by slowly rocking subtly from side to side and front to back. Find where you feel centred on your feet.
- When you feel centred, stop rocking and focus on your breathing.
- Inhale through your nose, filling your lungs from bottom to top.

- Take 5 to 10 breaths in this way, checking in with how your body is feeling
- Practice this step for 2minutes

Step – 4

Nitambasana (Side Stretch)

- Begin in Mountain Pose, standing with your feet parallel.
- Inhale and lift both arms overhead with the palms facing each other.
- You can also keep your arms bent, with your hands on your hips if keeping your hands above your head feels like you are stretching too deeply.
- Gently bend from the waist to the right, feeling a stretch along the left side of your body.
- Focus on keeping your left leg grounded into the earth beneath you.
- Hold your arms on the right and inhale and exhale 1 to 3 times.
- On an inhalation, bring your arms to centre above your head.
- Repeat on the other side.
- You can modify this pose by keeping your hands on your hips. Remember not to strain or hold your breath. You should feel a subtle stretch .
- Practice this step for 2minutes

Step – 5

Nitambasana (Reclining Spinal Twist)

- ✓ Begin by lying down on your back with your legs extended away from you.
- ✓ Bend your knees and bring your feet flat to the ground. Then, bring your knees toward your chest.
- ✓ Extend your arms out to the sides in a T position.
- ✓ Keep your jaw loose and the back of your neck long.
- ✓ Use your core to drop your knees to the right on an exhalation. You can squeeze a blanket or block between your thighs if you prefer.
- ✓ Take 3 to 5 breaths.
- ✓ Roll your legs back up to centre, and repeat on the other side
- ✓ Practice this step for 2minutes

Step – 6

Pranayama

1. Sit in a meditative pose or in a comfortable position on the floor.
2. Keep your back straight and shoulders relaxed.
3. Close your right nostril with right hand thumb.

4. Inhale from the left nostril.
5. Close the left nostril with the right hand index and middle fingers.
6. Exhale from the right nostril. This completes one round of Chandrabhedan pranayama. You can gradually do up to 20 rounds.
7. Practice this step for 8minutes

Step – 7

Shavasana

- ✓ Spread the legs one to two feet apart, the toes are turned outwards, the heal facing each other, a comfortable distance apart
- ✓ Bring the arms a little away from the body, palm turned upward
- ✓ Relax the neck and allow it do turn to the side if it is more comfortable
- ✓ Close the eyes and focus the attention on the body, breathing normally
- ✓ Begin focusing each body part and relaxing it, then moving on, keep the
- ✓